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BIRDS OF THE KINGS CANYON NATIONAL PARK AREA OF CALIFORNIA

By JOSEPH S. DIXON

The present check-list of birds and a companion list of mammals of Kings Canyon National Park represent the combined efforts of several naturalists and trained observers whose field work in this area has extended from 1916 to 1942. In this quarter of a century the following institutions and individuals have participated importantly in this work by collecting specimens.

In the summer of 1916 the Museum of Vertebrate Zoology of the University of California organized and sent an expedition to study the wildlife of the Kings Canyon area. The typical trans-Sierran section chosen extended westward from Kearsarge Pass on the extreme crest of the Sierra, which is now the eastern boundary of the Park, down by Bullfrog and Charlotte lakes and Bubbs Creek to the main south fork of Kings River where studies were made at Kanawyers, Zumwalt Meadow, Roaring River and Cedar Grove. Later in the fall, field work was continued westward at Horse Corral and Summit meadows, Hume, General Grant Grove, and Dunlap, and thence down to Minkler where the Kings River widens out as it enters the San Joaquin Valley. Study of the Owens Valley portion of this section was completed later.

This initial work was carried on for the University by H. S. Swarth, Joseph S. Dixon and H. G. White who recorded their findings in 230 pages of field notes and 119 photographs. In addition to this they collected and preserved as study specimens 382 birds, 556 mammals, 334 reptiles and 49 amphibians. This material plus specimens and records collected in the General Grant Section by Professor William T. Shaw of Fresno State College, together with critical material collected in the summer of 1942 by the writer and representatives from the Museum of Vertebrate Zoology in Kings Canyon form the basic specimen material for the names, occurrences and distribution set forth in this report. In July, 1942, assisted by my son David and two elderly pack mules, I made a survey of the extreme northern part of the Park that lies north of the Goddard Divide along the headwaters of the South Fork of the San Joaquin River. This area is the only part of the Park that lies outside of the Kings River drainage. Several species new to the Park list were detected.

After the creation of Kings Canyon National Park by Congress on February 18, 1940, various representatives of the Department of the Interior made trips there to survey the wildlife. Dr. H. C. Bryant made observations during his extended travels through the Park while serving as Consultant in 1940-41. His own observations and the records of former Park Ranger Bruce I. Barclay, Ranger-naturalist Basil Jamison and Professor William T. Shaw made it possible for Dr. Bryant to include 52 species of mammals and 107 kinds of birds in his 1941 check-list for the Park.

Between July 8 and 31, 1936, Mr. E. Lowell Sumner, Jr., visited Bubbs Creek,

Paradise, South Fork of Kings, Goddard Canyon, Middle Fork, Daugherty Creek and Kearsarge Pass. In the summer of 1940 he covered the main parts of the Park while making his "Range Management and Wildlife Study." Many records are included here from his report of May 23, 1941. In August, 1941, Dr. James Moffett and the writer investigated fish and wildlife conditions at Kings Canyon, Bubbs Creek, East Lake, Reflection Lake, Vidette Lakes, Lewis Creek, and Cedar Grove and compared wildlife conditions with those found there a quarter of a century before in 1916.

It is realized that the present check-lists do not include all of the different kinds of birds and mammals that will eventually be found in the Park. It is probable that quite a few species that have been found in Sequoia and Yosemite national parks will in time also be found in Kings Canyon. Certain records have been made just outside the Park for species that may in the future be found to occur rather commonly within it. Thus a record marked with an asterisk indicates that the locality is *outside* but believed close enough to the Park boundary to indicate that the species occurs in the Park.

In order to give proper credit and to fix the authority for the various records, the name of the person vouching for the record is given. In critical instances where actual specimens have been collected, the specimen numbers are given. Unless indicated otherwise, specimen numbers refer to the Museum of Vertebrate Zoology. Unpublished field notes are filed in the Museum of Vertebrate Zoology at Berkeley and in the files of the National Park Service at San Francisco.

Most of the reports on the birds of Kings Canyon consist of original field notes or are in manuscript form as indicated in the following list of references: Barclay, B. S., and Jamison, B. E., Revised Check-list of Birds of General Grant National Park, December 1, 1937 (MS); Bryant, Mrs. A. M., field notes, 1940-41; Bryant, H. C., Check-list of birds of Kings Canyon National Park, completed July 7, 1941 (MS); Dixon, Joseph S., field notes and specimens, 1916, 1940, 1941, 1942; Graff, A., Bird List of General Grant National Park, California (MS); Hopping, Guy, General Grant National Park Monthly Report, September, 1935 (MS); Miller, Alden H., field notes, May, 1942; Shaw, W. T., A Provisional Check-list of Birds of General Grant National Park, California, 1936 (MS); Swarth, H. S., Revision of the Avian Genus *Passerella*, with Special Reference to the Distribution and Migration of the Races in California, Univ. Calif. Publ. Zool., 21, 1920:75-224, and field notes and specimens, 1916; Sumner, E. L., Jr., Wildlife Distribution in Kings Canyon, 1941 (MS); White, H. G., field notes and specimens, 1916.

Thanks are extended to all the institutions and people who have so generously assisted by granting use of personal field notes or by granting free use of specimens. Identification of "difficult" bird specimens, including song sparrows, small flycatchers and red-winged blackbirds, has been kindly furnished by Dr. Alden H. Miller, Director of the Museum of Vertebrate Zoology. This aid is particularly appreciated because in these instances actual specimens were found to be essential to proper identification of the breeding races; Kings Canyon seems to be an area where the Yosemite and southern Sierra faunas meet.

Thanks are also due Park Superintendent Scoyen and Ranger Gim, as well as to Mrs. Joseph Grinnell and the entire group of officers and advanced students from the University of California who gave valuable assistance to the field investigations in Kings Canyon in May, 1942.

Colymbus nigricollis californicus. Eared Grebe. Occasional fall visitant at Sequoia Lake* (Bryant, 1941). Hume Lake*, August 23, 1916, one seen (Dixon); three seen, August 17, 1916 (Swarth).

Podilymbus podiceps podiceps. Pied-billed Grebe. Occasional fall visitant. One seen at Hume Lake*, August 23, 1916 (Dixon).

Ardea herodias hyperonca. California Blue Heron. Occasional visitant at Sequoia Lake* (Bryant, 1941). One seen at headwaters of the Middle Fork, September 3, 1941 (Sumner). Boulder Creek*, one seen, September 22, 1916 (Dixon). Hume*, one seen, August 17, 1916 (Swarth).

Egretta thula brewsteri. Brewster Snowy Egret. A rare migrant. On July 29, 1942, at the lower end of McClure Meadow in Evolution Valley where there was a series of shallow, sedgy fresh-water ponds, I found a lone Snowy Egret feeding in one of these ponds and was able to examine it for 20 minutes with 8-power binoculars in good light at a distance of 160 feet. The bird had a height of about 24 inches. Its bill and legs were black. When the egret foraged along the creek bank, its feet were seen to be distinctly yellowish.

Anas platyrhynchos platyrhynchos. Common Mallard. Occasional visitant to the park. At Bullfrog Lake, 10,634 feet, on September 4, 1916, five were seen and recorded both by Swarth and Dixon in 1916.

Mareca americana. Baldpate. Occasional visitant to Sequoia Lake*. Observed there October 21-22, 1940, by A. E. Thompson (Bryant, 1941).

Nettion carolinense. Green-winged Teal. Occasional fall migrant. A flock of seven was observed at Bullfrog Lake, 10,634 feet, August 27, 1916 (Dixon).

Nyroca valisineria. Canvas-back. Occasional winter visitant. Noted at Sequoia Lake*, November 24-25, 1940, by A. E. Thompson (Bryant, 1941).

Nyroca affinis. Lesser Scaup Duck. Winter visitant. At Sequoia Lake* on November 25, 1940, 168 were noted by A. E. Thompson (Bryant, 1941).

Erismatura jamaicensis rubida. Ruddy Duck. Occasional visitant to Sequoia Lake*. Seen there on October 21, 1940, by A. E. Thompson (Bryant, 1941).

Cathartes aura. Turkey Vulture. An occasional summer visitant. Noted at Cedar Grove, August 22, 1941 (Dixon). Observed at General Grant in 1936 (Shaw).

Astur atricapillus. Goshawk. Resident in Canadian Zone (Bryant, 1941). One seen, September 2, 1940, at "Little Upper Pete" Meadow by Sumner. On May 12, 1942, an adult female hawk of this species was seen hunting along the ridge just west of Frypan Meadow. From the actions of the bird it was thought to be nesting in the red firs near the head of Lewis Creek (Dixon).

Accipiter velox velox. Sharp-shinned Hawk. An uncommon summer visitant. General Grant, 1937 (Barclay and Jamison). Observed at Grant, 1940 (Bryant, 1941). One seen at Scaffold Meadow, September 24; one at Moraine Meadow, September 25; and one above Hotel Creek Trail, September 29, 1940 (Sumner, 1941).

Accipiter cooperii. Cooper Hawk. Fairly common resident. Seen at Kanawyers, August 26, 1916 (Dixon). One seen at Bullfrog Lake, September 16, 1916 (Dixon). One seen at Charlotte Lake, September 3, 1916 (Swarth). One seen at LeConte Canyon, September 1, 1940; one at Grouse Meadow, September 2, 1940, and one at Palisade Creek, September 2, 1940 (Sumner, 1941). Nested at Sheep Creek in 1941 (Dixon). General Grant (Bryant, 1941).

Buteo borealis calurus. Western Red-tailed Hawk. Fairly common resident. One seen near summit of Mount Gould, August 30, 1916 (Dixon). One seen carrying a partly eaten squirrel on Generals Highway inside park boundary, June 10, 1936 (Sumner, 1941). Observed at General Grant in September and October, 1940 (Bryant, 1941). One seen on May 21, 1942, at 6800 feet on Sheep Creek Trail (Miller, 1942).

Buteo swainsoni. Swainson Hawk. Occasional visitant. One observed on summit of Mount Gould, August 30, 1916 (Swarth and Dixon).

Aquila chrysaetos canadensis. Golden Eagle. Resident. A pair observed at Kearsarge Pinnacles, September 2, 1916. Observed along walls of Kings Canyon, May, June, and October 4, 1940 (Bryant, 1941). One seen May 17, 1942, along north rim Kings Canyon near Hotel Creek. On July 28, 1942, one seen at Evolution Lake (Dixon, 1942).

Circus hudsonius. Marsh Hawk. Rare visitant. One seen at Rae Lakes, August 29, 1940 (Bryant, 1941).

Pandion haliaetus carolinensis. Osprey. Rare visitant. Observed at Sequoia Lake*, October, 1940, by A. E. Thompson (Bryant, 1941).

Falco mexicanus. Prairie Falcon. Rare visitant. One seen close overhead at 12,200 feet near summit of Mount Gould, August 30, 1916 (Dixon and Swarth).

Falco columbarius. Pigeon Hawk. Rare winter visitant. Observed at Converse Basin*, October 5, 1940, and at Sequoia Lake*, October 21, 1940, by A. E. Thompson (Bryant, 1941).

Falco sparverius sparverius. Sparrow Hawk. Common summer visitant nesting at middle altitudes. When the young are able to fly, entire families migrate to the timberline basins where grasshoppers are numerous in August and September. Noted as follows: Zumwalt Meadow, July 21; young on wing. Tent Meadow, July 22, young calling. Dougherty Meadow, August 26, several seen. Upper Basin, September 4, common in family groups (Sumner, 1941). Noted above summit of Mount

Gould, 13,001 feet, August 30, 1916 (Dixon). Common in Kings Canyon (Bryant, 1941).

Dendragapus fuliginosus sierrae. Sierra Dusky Grouse. Common resident. Heard in spring from middle altitudes up to 8500 feet. At Goat Mountain, Halfmoon Meadow, Tent Meadow, and Granite Basin on July 25, 1940. One at Grouse Meadow, August 28; Cloud Canyon, September 23 (Sumner, 1941). Observed in Grant Section by Ranger Barclay (Shaw, 1936); and at Copper Creek, August, 1940; Simpson Meadows, August, 1940; Woods Creek, August 27, 1940 (H. C. Bryant, 1941). Bubbs Creek, 7200 feet, August 21, 1941, and East Lake, August 24, 1941 (Dixon). At Deer Cove, on May 12, 1942, one female was watched catching grasshoppers. On May 14, 1942, one male grouse was seen at Lookout Peak. In a yellow pine forest near Lewis Creek one male grouse was found on the ground eating fresh green lupine leaves on May 16, 1942. On May 20, 1942, at West Fork Hotel Creek, 4 male Sierra Grouse were all hooting at once within a radius of one-fourth mile (Dixon). One was heard May 21, 1942, at 6800 feet on Sheep Creek (Miller).

Oreortyx picta picta. Mountain Quail. Common resident, being especially noticeable in spring and fall. Bubbs Creek, 5500 feet, August 21, 1941, specimens 10349-54, female adult and immature. Kings Canyon, 5000 feet, September 15, 1916. At Coffee Mill Meadow, on July 30, seven young barely able to fly were seen. Simpson Meadow, September 5, one bird seen. Cloud Canyon, September 23, one flushed. On September 25, 1941, nine seen near Moraine Meadow; September 27, 1941, one at Jerky Meadow (Sumner). One seen at Stag Dome, May 6, 1942. One was seen at Lookout Peak, May 29, 1942 (Dixon).

Porzana carolina. Sora. A rare transient. One immature specimen, no. 10256, was collected at Bullfrog Lake, 10,634 feet, August 29, 1916 (Swarth).

Fulica americana americana. American Coot. Occasional visitant. On August 18, 1916, at Hume Lake* one Coot was observed (Swarth). Nest noted at Sequoia Lake* by A. E. Thompson (Bryant, 1941).

Oxyechus vociferus vociferus. Killdeer. A summer visitant, observed around General Grant Meadow (Barclay and Jamison, 1936). Nests observed at Sequoia Lake* by A. E. Thompson (Bryant, 1941). One observed at Hume Lake*, August 16, 1916 (Swarth).

Actitis macularia. Spotted Sandpiper. A rare summer visitant along lake and stream banks. Sumner spent a whole summer covering the meadows in the park without seeing any Spotted Sandpipers. Bryant saw one on May 22, 1941, where Roaring River flows into Kings River. On May 6, 1942, a pair was seen mating on Kings River just above Lewis Creek (Dixon).

Tringa solitaria cinnamomea. Western Solitary Sandpiper. A rare migrant. One specimen, no. 81235, collected by Miller at Bullfrog Lake, August 14, 1924, is our only record for the park.

Larus delawarensis. Ring-billed Gull. Occasional fall visitant to high mountain lakes (Bryant, 1941).

Columba fasciata fasciata. Band-tailed Pigeon. Resident. Observed at General Grant by Barclay in 1934 (Shaw, 1936). Kings Canyon, July, 1940; General Grant, October, 1940 (Bryant, 1941). At Hotel Creek, May 29, 1942, at 9 a.m., the skeleton, flight and tail feathers of a Band-tailed Pigeon that had just been killed and eaten by a hawk was noted (Dixon).

Zenaidura macroura marginella. Western Mourning Dove. Summer visitant. One seen at Kings Canyon, September 12, 1940 (Bryant, 1941). On May 19, 1942, one of these doves was seen at the east side of Sheep Creek just inside the park boundary (Dixon). One was seen at Kanawyers, September 10, 1916 (Swarth).

Otus asio quercinus. Pasadena Screech Owl. Rare resident on floor of Kings Canyon. One adult female, no. 27188, was collected by H. G. White at Kanawyers, September 10, 1916.

Bubo virginianus pacificus. Pacific Horned Owl. Common resident. One heard calling at Kanawyers, September 10, 1916 (Swarth). Reported from General Grant by Ranger Barclay (Shaw, 1936); Kings Canyon, July, 1940 (Bryant, 1941). Simpson Meadow, August 4, 1940 (Bryant). Sugarloaf Meadow, September 21, 1941 (Sumner).

Glaucidium gnoma californicum. California Pigmy Owl. Regular resident at General Grant and Kings Canyon in July, 1940 (Bryant, 1941). I collected a specimen, no. 27189, at Kanawyers, September 15, 1916. On May 20, 1942, at North Rim Kings Canyon near Hotel Creek, a Pigmy Owl called repeatedly at 9:30 a.m. At Cedar Grove, May 22, 1942, a Pigmy Owl was heard calling repeatedly and rapidly at 5 a.m. near the river (Miller).

Strix occidentalis occidentalis. California Spotted Owl. Resident at General Grant, July, 1940 (Bryant, 1941) and on floor of Kings Canyon where a male (no. 27187) was collected September 12, 1916. Specimen no. 74640, taken May 31, 1938, from the west slope of Redwood Mountain, contained 3 bats and one deer mouse; specimen no. 79355, from the same place, contained 1 long-eared bat and 4 crickets (Marshall, Condor, 44, 1942:66).

Cryptoglaux acadica acadica. Saw-whet Owl. A rare resident. The only specimen that we have



Fig. 53. Female Calliope Hummingbird on nest in golden oak.
Sheep Creek, Kings Canyon, May 28, 1942.

for this owl within the park is furnished by Mr. Milton Hildebrand who picked up a fresh wing feather of this species at 6500 feet in Paradise Valley in Kings Canyon on August 8, 1941. This feather has been carefully compared with specimens by both Alden Miller and the writer and was found to belong unquestionably to this species. Mr. Joe Marshall reports finding remains of a Saw-whet that had been eaten by another larger owl at Whitaker Forest just outside the park, near Redwood Mountain, and Mrs. Lofberg (Condor, 30, 1928:314) reports detailed observations of life habits of this species at Florence Lake* near the north boundary of the park.

Phalaenoptilus nuttallii californicus. Dusky Poor-will. Summer visitant; not common in the park. One heard at Kanawyers, September 13, 1916 (Dixon). One flushed from Long Meadow and one from Hotel Creek trail about one mile from Cedar Grove on September 29, 1940 (Sumner, 1941).

Chordeiles minor hesperis. Pacific Nighthawk. Summer visitant in high open mountain meadow country (Bryant, 1941).

Nephoecetes niger borealis. Black Swift. Summer resident at General Grant and Kings Canyon, July, 1940 (Bryant, 1941). Nested at Ella Falls in 1936 (A. E. Thompson). One observed over summit of Mitchell Peak, September 21, 1916. One seen May 25, 1942, at Zumwalt Meadow (Dixon).

Aëronautes saxatalis saxatalis. White-throated Swift. Summer visitant. Observed in flocks near Kanawyers on August 25, 1916, by Swarth. Kings Canyon, July, 1940 (Bryant, 1941). Ten were seen below Lookout Peak, May 14, 1942.

Calypte anna. Anna Hummingbird. Occasional summer visitant at lowest elevations. One observed at Mist Falls, July, 1940 (Bryant, 1941).

Selasphorus rufus. Rufous Hummingbird. Spring and fall migrant. Observed at General Grant, September, 1940 (Bryant, 1941).

Selasphorus alleni. Allen Hummingbird. Summer visitant. The Allen Hummingbird is believed by the writer to breed in Kings Canyon, although we still lack a bird collected with nest and eggs. The Rufous Hummingbird passes through the Sierran foothills in March and April on its journey north and migrates south again in late summer. Specimens taken between May 11 and July 8 in the Kings and Sequoia areas have proved to be the Allen Hummingbird. The first spring arrival of *alleni* was noted May 14, 1942, when an adult male was seen on south slope at 6500 feet on Sheep Creek. On May 27, 1942, a female Allen was seen gathering nest materials at Zumwalt Meadow. On July 22, 1942, an adult male and female were seen at Florence Lake* where Bartholemew says they nest. On July 24, 1942, one adult male was seen in Goddard Canyon at 8500 feet. On July 27, 1942, four, including two adult males, were seen at Colby Meadow in Evolution Valley at 9900 feet (Dixon).

Stellula calliope. Calliope Hummingbird. Summer resident in fir forests. Observed near Mitchell Peak, September 21, 1916 (Swarth and Dixon). One observed at Copper Creek on August 1, 1940 (Bryant, 1941). The first spring arrival was noted on May 8, 1942, at Lewis Creek. On May 21, 1942, at Sheep Creek, a nest was found in a small golden oak near the trail and about 40 feet from the stream. It was placed on top of a limb three-fourths of an inch in diameter which was protected by a larger limb above and slightly to one side of the nest. It was made of compacted plant fiber and camouflaged with bits of gray lichen (see fig. 53) (Miller). On May 28, 1942, this nest contained two small young just hatched. On July 27, 1942, three were seen at McClure Meadow in Evolution Valley at 9800 feet and on July 28, 1942, one was seen feeding on meadow pentstemon at 10,400 feet on the John Muir trail below Evolution Lake (Dixon).

Megaceryle alcyon caurina. Western Belted Kingfisher. Common resident along major streams. One was heard at Bullfrog Lake on September 7, 1916 (Swarth). One female specimen (no. 27190) was collected at Kanawyers on August 18, 1916. Observed in Kings Canyon from July to September, 1940 (Bryant, 1941). One seen at Wildman Meadow, August 1, 1940; Paradise Valley, August 12, 1940; Cedar Grove, August 14, 1940; Grouse Meadow, September 2, 1940; and Cloud Canyon, September 23, 1940 (Sumner, 1941). Kingfishers were observed regularly in August along Kings River between Cedar Grove and Bubbs Creek in 1940. Comparison of field notebook records of August, 1916, with August, 1941, showed there had been an appreciable increase in kingfishers in the 25-year interval (Dixon).

Colaptes cafer collaris. Red-shafted Flicker. Common resident at General Grant (Bryant, 1940). Common in forests at middle altitude and thence to timber line; becomes scarce by the end of September (Sumner, 1941). Noted as follows: July 29, numerous at Frypan Meadow; August 11, several at Woods Lake; August 25, frequent at Tent and Halfmoon meadows; September 1, several in Le Conte Canyon; September 4, one on Sphinx Creek trail; September 27, one at Hotel Meadow and one at Jerky Meadow (Sumner, 1941). Swarth records one flicker at Bullfrog Lake, 10,634 feet, on August 28, 1916, also one at Kanawyers, on September 10, 1916. Seen at Kings River Canyon, at Cedar Grove and Kanawyers, and at Bubbs Creek in August, 1916, and again in August, 1941. A slight increase was noted in 1941 over 1916 (Dixon).

Ceophloeus pileatus picinus. Western Pileated Woodpecker. Resident at General Grant Grove where evidence of its work is numerous (Shaw, 1936) and where it was seen May-October, 1940, by Bryant. We also heard one on August 10, 1916, at Kanawyers. On May 14, 1942, near Lookout Peak, a pair was busy digging a nest cavity in a white fir stub. They were courting and giving mating calls. On May 20, 1942, at Hotel Creek, one was seen and heard in red firs at 8000 feet. On May 29, 1942, one was seen at the head of the west fork of Sheep Creek (Dixon).

Balanosphyra formicivora bairdi. California Woodpecker. Resident along lower west margin of the park. Sumner (1941) states that this species is numerous only at low altitudes near the west boundary and that many were seen on September 27, 1940, near the Hotel Creek trail. It was seen in Kings Canyon, September 25, 1940, and at Copper Creek, October 4, 1940, by Bryant who also records that it occurs in the oaks in the western part of the General Grant section. Found near the mouth of Lewis Creek and at Cedar Grove in August, 1941, and in May, 1942 (Dixon).

Asyndesmus lewis. Lewis Woodpecker. Fall migrant. First arrivals noted on September 27, 1940, at Hotel Creek and Lewis Creek where they became numerous two days later (Sumner, 1941). None observed in this area between August 18 and September 16, 1916 (Swarth) or from August 22 to 31, 1941 (Dixon). Observed at General Grant Grove on September 29, 1940 (Bryant, 1941).

Sphyrapicus varius daggetti. Southern Red-breasted Sapsucker. A summer visitant at lower altitudes in forested areas. At Kanawyers an adult male (no. 27202) was collected on September 12, 1916 (Swarth). Listed by Shaw at General Grant Grove where it was observed nesting in 1940 (Bryant, 1941).

Sphyrapicus thyroideus thyroideus. Williamson Sapsucker. A fall and winter visitor at General Grant Grove (Shaw, 1936). An adult male (no. 27211) was collected at Horse Corral Meadow*, September 20, 1916. Occurs in the higher lodgepole pine forest (Dixon, 1942).

Dryobates villosus hyloscopus. Cabanis Hairy Woodpecker. Common resident at General Grant (Shaw, 1936, and Bryant, 1941). Two birds were seen, September 10, 1916, and one specimen (no. 27191) was collected September 10, 1916, at Kanawyers by Swarth. It was not observed by Sumner, White, Swarth, or Dixon in any of the higher forested areas of the park. On May 8, 1943, at Lewis Creek one was seen, and another was noted on May 14, 1942, at Sheep Creek (Dixon). Miller saw one at Cedar Grove on May 21, 1942.

Dryobates pubescens turati. Willow Downy Woodpecker. Rare resident in lowest forested part of Kings Canyon. One specimen (no. 27196), an immature male, was collected at Hume*, August 23, 1916 (Swarth). Copper Creek, August 1, 1940; Kings Canyon, August 31, 1940 (Bryant, 1941). One was seen at Lewis Creek on May 8, 1942 (Dixon).

Dryobates nuttallii. Nuttall Woodpecker. A fall visitor. Observed by Mrs. A. M. Bryant at General Grant Grove, September 30, 1940.

Dryobates albolavatus albolavatus. Northern White-headed Woodpecker. Common resident in Transition and Canadian zones of the park. Several seen July 31, 1941, in Lewis Creek drainage up to 10,400 feet. One was seen, May 8, 1942, at Lewis Creek and another seen inside park on Lewis Creek, May 17, 1942. One seen, May 29, at Lookout Peak (Dixon). Miller saw one on May 21, 1942, at Cedar Grove Camp. Observed nesting at General Grant Grove, May 22, 1936 (Shaw).

Picoides arcticus. Arctic Three-toed Woodpecker. Resident in Hudsonian Zone (Bryant, 1941). One seen at Reflection Lake, 10,168 feet, on August 24, 1941 (Dixon).

Myiarchus cinerascens cinerascens. Ash-throated Flycatcher. A rare summer visitant. On May 6, 1942, on south side of Stag Dome, one Ash-throated Flycatcher was seen and heard calling at 5500 feet (Dixon).

Sayornis saya. Say Phoebe. A rare fall visitor. One individual was seen in the meadow near Kanawyers on September 10, 1916 (Swarth).

Empidonax traillii brewsteri. Traill Flycatcher. Summer resident at General Grant where it nested in 1940 (Bryant, 1941). An adult female of this species was collected on August 22, 1916, at Hume* by H. G. White (no. 27224). On May 27, 1942, at Zumwalt Meadow I collected a Traill Flycatcher in the willows at the water's edge.

Empidonax hammondi. Hammond Flycatcher. A summer resident. Seen in the forested area at General Grant, May, 1940 (Bryant). The similarity of the small flycatchers of the genus *Empidonax* makes them notoriously difficult to identify in the field even by such experienced ornithologists as Grinnell and Swarth. It has frequently been found that birds identified as Hammond's in the field proved to be Wright's when taken to the museum. An immature female *hammondi* (no. 27226) was collected on September 25, 1916, at Hume* by H. G. White. One was collected on May 26, 1942, at Zumwalt Meadow. On July 27, 1942, two flycatchers believed to be *hammondi* were seen at close range at McClure Meadow in Evolution Valley (Dixon, 1942).

Empidonax wrightii. Wright Flycatcher. Common summer resident. It has been the experience of Swarth, Bryant and Dixon that this is the small flycatcher most frequently met in summer in the "deer brush" of the Transition Zone at Kings Canyon. Extreme altitudes of occurrence based on specimens are 5000 feet at Kanawyers (no. 27229), on September 15, 1916, and 10,634 feet (no. 27228) at Bullfrog Lake, August 28, 1916.

Empidonax difficilis difficilis. Western Flycatcher. A summer resident. Observed at Bubbs Creek, May, 1940 (Bryant, 1941). A specimen (no. 27223) collected by Swarth at Hume* on August 18, 1916.

Myiochanes richardsonii richardsonii. Western Wood Pewee. A common summer resident. A male (no. 27222) was collected at Kanawyers, September 12, 1916. Four seen at General Grant Grove, May 22, 1936 (Shaw, 1936). Noted at Frypan Meadow, July 31, 1940, and at Little Pete Meadow, August 29, 1940 (Sumner, 1941). Noted at Cedar Grove and Zumwalt Meadows on August 9, 1940. On May 13, 1942, at Lewis Creek two of these birds were snapping up a great number of swarming, winged, adult termites that were emerging from a pile of old logs. On July 27, 1942, at Colby Meadow, two were seen and one collected (Dixon).

Nuttallornis mesoleucus. Olive-sided Flycatcher. Summer resident in lower forested areas (Bryant, 1941). Five were seen on May 26, 1936, at General Grant (Shaw, 1936). Common in heavy timber but not heard calling after August 29. Numerous below Cartridge Pass on September 4, 1940 (Sumner, 1941). Observed at East Lake, August 8, 1940, by Frances Payne. First spring arrival noted on May 12, 1942, at 5500 feet, on Stag Dome. On May 14, 1942, one was seen at Sheep Creek. On May 20, 1942, two were heard calling along yellow pine ridge beside Hotel Creek. One noted on east face of Lookout Peak, May 29, 1942. July 24, 1942, one adult male seen in Goddard Canyon at 8500 feet (Dixon).

Tachycineta thalassina lepida. Violet-green Swallow. Summer visitant. Observed flying over meadows. A flock of about 100 was seen near Hume*, August 17-19, by Swarth. One was seen at 6000 feet on Stag Dome, May 6, 1942 (Dixon).

Cyanocitta stelleri frontalis. Blue-fronted Jay. Common resident in the timber at middle altitudes. Four were seen at Kanawyers on September 10, 1916 (Swarth). Noted on July 31, 1941, at Frypan Meadow; August 29, between Simpson Meadow and Cartridge Creek; September 6, between Tent Meadow and Copper Creek and September 21-23 at Scaffold Meadow (Sumner, 1941). Two were observed building a nest at Lewis Creek on May 9, 1942 (Dixon).

Apelocoma californica immanis. Long-tailed California Jay. A visitor in late summer and fall to the lower western portion of the park. I saw one in Kings Canyon just below Kanawyers on September 17, 1916. Seen at Big Stump, September, 1940 (Bryant, 1941).

Corvus corax. Raven. Rare resident. Two were seen on September 27, 1940, above the canyon wall in vicinity of Hotel Creek trail (Sumner, 1941).

Nucifraga columbiana. Clark Nutcracker. Resident. Most frequently encountered in the vicinity of timber line; noted infrequently low down in the heavy forests. Swarth collected an adult male (no. 27249) at Bullfrog Lake on August 30, 1916. We have a record for Kanawyers on September 10, 1916 (Swarth, 1916) and H. G. White collected a specimen (no. 602 H.G.W.) at Kanawyers, on September 12, 1916. Reported near headquarters at General Grant, September 30, 1935 (Hopping). One seen at Woods Lake on August 12, 1940; also near Simpson Meadow on August 28, 1940 (Sumner, 1941). At McClure Meadow, 9700 feet, in Evolution Valley, on July 25, 1942, one Clark Nutcracker was seen near camp. Six were seen on July 29, 1942, at Colby and McClure meadows in Evolution Valley. One was seen feeding on July 28, 1942, in an alpine meadow near The Hermit (Dixon).

Pensthes gambeli abbreviatus. Short-tailed Mountain Chickadee. Resident in forests up to timber line. Moderately common at General Grant (Shaw, 1936). I observed three above timber line at 12,200 feet on Mount Gould on September 1, 1916, and I saw two near Bullfrog Lake on September 5, 1916; on September 6, 1916, Swarth saw an entire family at Bullfrog Lake, and H. G. White collected three specimens (nos. 27531-27533) there. Sixteen of these chickadees were seen at Kanawyers on September 10, 1916 (Swarth). In 1940 Sumner found them on July 31 at Lewis Creek. At south base of Stag Dome on May 6, 1942, one chickadee was watched building its nest in an old woodpecker hole 30 feet up in a cottonwood. One pair was seen nesting at Hotel Creek on May 20, 1942, and one was seen at Lookout Peak on May 29, 1942 (Dixon).

Psaltiriparus minimus californicus. California Bush-tit. A casual fall visitor along extreme western portion of park. Observed at General Grant Grove on September 8, 1940, by Mrs. A. M. Bryant.

Sitta carolinensis aculeata. Slender-billed Nuthatch. Summer resident at General Grant. Seen at Simpson Meadow, August 4, 1940 (Bryant). White collected a male (no. 27509) on September 3, 1916, at Hume*. Sumner reports it fairly common in timber at middle altitudes. Seen September 25 near Moraine Meadow and September 27, 1940, on trail to Hotel Creek (Sumner, 1941). I saw one on September 5, 1916, at Bullfrog Lake and Swarth saw one at Charlotte Lake, September 3, 1916.

Sitta canadensis. Red-breasted Nuthatch. Resident at General Grant Grove (Shaw, 1936) and observed there from June to October, 1940 (Bryant, 1941). Noted at Halfmoon Meadow on August 25, 1940 (Sumner, 1941). Swarth saw a Red-breasted Nuthatch at Kanawyers on September 10, 1916. One was seen on the east side of Sheep Creek, May 19, 1942. Another was seen at Lookout Peak on May 29, 1942 (Dixon). Miller saw one at 4800 feet on a bench above Sheep Creek, May 21, 1942.

Sitta pygmaea melanotis. Black-eared Pigmy Nuthatch. Summer resident. On May 21, 1942, Miller heard and saw this nuthatch on a bench above Sheep Creek. It is believed to be restricted to the lower, hotter areas along the western boundary of the park. Reported nesting, April 27, 1941, at Indian Basin* (Bryant, 1941).

Certhia familiaris zelotes. Sierra Creeper. Summer resident in timbered areas at middle altitudes. Observed by Barclay at General Grant (Shaw, 1936). Noted by Bryant in Kings Canyon during July, 1940. One seen August 4 at East Lake, two at Simpson Meadow on September 5, and one at Scaffold Meadow on September 24, 1940 (Sumner, 1941). The first one noted in 1942 was seen on May 12 at 5500 feet on Stag Dome. Two were seen on May 29, 1942, at Lookout Peak. On May 21, 1942, Miller noted one near Cedar Grove.

Chamaea fasciata henshawi. Pallid Wren-tit. A rare resident in lower Kings Canyon. One observed, July 20, 1940, on hot, dry slope at Copper Creek (Bryant, 1941). On May 9, 1942, a Wren-tit sang lustily and came within ten feet of me in the thick brush at Lewis Creek. Two Wren-tits were seen May 16, 1942, at Little Creek inside the park. On May 20, 1942, two were seen near Hotel Creek (Dixon).

Cinclus mexicanus unicolor. Dipper. Resident along all of the larger streams and occasional in summer along the rocky margins of alpine lakes. One seen at Bullfrog Lake, August 8, 1916, and at Kanawyers on September 19, 1916 (Swarth). Noted at Ouzel Creek at East Lake by Sumner in 1940

and by Dixon in 1941; September 1, 1940, Evolution Lake; September 3, 1940, at the first lake opposite the Middle Palisade en route to Mather Pass (Sumner, 1941). Nested on Copper Creek in July, 1940. Observed at Zumwalt Meadow, September 25, 1940, and at Roaring River, September 12, 1940 (Bryant, 1941). Observed at mouth of Roaring River in August, 1941; Cedar Grove, Bubbs Creek, Reflection Lake, East Lake and Vidette Creek, in August, 1941 (Dixon). On May 11, 1942, at Lewis Creek a nest was located in a cluster of moss behind a water fall. On May 21, 1942, at Sheep Creek a nest was found behind a waterfall. The Dipper flew directly through the curtain of water (fig. 54)



Fig. 54. Waterfall on Sheep Creek, Kings Canyon. A Dipper nest was placed in a mossy niche behind this fall; May 19, 1942.

to reach her nest. At Cedar Grove Bridge, May 28, 1942, a pair of Dippers built their nest on a steel beam that supports the bridge. The birds were careful to place the nest where it would be directly over the stream. They were still feeding young in the nest although one youngster had left the nest and perched on boulders beside the river where it was being fed by the parents. On July 28, 1942, one was seen at Darwin Canyon at 11,500 feet near the lowest of the four Darwin Lakes (Dixon).

Troglodytes aëdon parkmanii. Western House Wren. Summer resident, breeding in the lower and middle forested areas. Seen at Simpson Meadow, August 4, 1940 (Bryant, 1941).

Nannus hiemalis pacificus. Western Winter Wren. Reported as resident in Canadian and Hudsonian zones by Bryant, 1941, based on the sight record of Frances Payne at East Lake in August, 1940. In August, 1941, I made a special search for this wren at East Lake but all the small wrens that I found proved to be brownish immature Western House Wrens. All the specimens taken at high altitudes in this area have proved to be House Wrens. Specimens collected at 9600 feet near

Bullfrog Lake on September 3, 1916 (no. 27502) by H. G. White and at 9800 feet near Twin Lakes (no. 30922) on August 15, 1919, by Louise Kellogg are both Western House Wrens. Swarth, Bryant, Dixon, Sumner and White all failed to find any Winter Wrens and an actual specimen is needed to substantiate this record.

Thryomanes bewickii drymoecus. San Joaquin Bewick Wren. Late summer and fall vagrant. Wrens with long tails and hence presumed to be of this species were observed on August 27, 1940, on the ridge between the east and middle forks of Dougherty Creek. On September 14, 1940, one was seen at Cartridge Meadow (Sumner, 1941). Specimens (nos. 27496, 27497) were collected lower down on the Kings River near Dunlap* by Swarth on September 30 and October 1, 1916.

Telmatodytes palustris. Marsh Wren. Rare summer visitant. Swarth observed a Marsh Wren in 1916 at such close quarters in a marshy meadow near Kanawyers that, although certain of the species, he was too close to shoot it for a specimen.

Catherpes mexicanus. Canyon Wren. Resident. One female (no. 27489) was collected on September 15, 1916, at Kanawyers. One or two others were heard on September 10, 1916, in the rock slides along Kings Canyon near Kanawyers (Swarth). Observed in Kings Canyon during July, 1940 (Bryant, 1941).

Salpinctes obsoletus obsoletus. Common Rock Wren. Resident. This species has been observed from the highest to the lowest parts of the park. Thus one was seen at Horseshoe Bend, July 3, 1941, by Bryant, and one was seen at Bullfrog Lake on August 27, 1916, and another near the summit of Mount Gould, 13,001 feet on August 30, 1916 (Swarth). Another was seen on September 21, 1916, on the summit of Mitchell Peak (Dixon). Observed at Granite Basin, August 6, 1940; Rae Lakes, August 29, 1940. Seen August 11, 1940, at Woods Lake. On September 2, 1940, it was numerous on both sides of Mather Pass (Bryant, 1941).

Turdus migratorius propinquus. Western Robin. Common summer resident nearly to timber line in all wooded sections. Three were seen about camp at Kanawyers, September 10, 1916 (Swarth). Seen as follows in 1940: July 31, fairly common at Frypan Meadows; August 29, common at Little Pete Meadow; September 21, two seen at Marvin Pass. On September 25, 1940, one was seen on slope east of Moraine Meadow, but none thereafter (Sumner, 1941). First noted in 1942 on May 6 at Lewis Creek where five robins were seen along lower western park boundary. One was seen building its nest at Lewis Creek on May 8, 1942. At Summit Meadow, six were seen on May 29, 1942 (Dixon). Robins were heard calling every morning at Cedar Grove by Miller (1942).

Ixoreus naevius. Varied Thrush. Occasional winter visitant. Seen at General Grant on November 15, 1940 (Bryant, 1941).

Hylocichla guttata sequoiensis. Sierra Hermit Thrush. Summer resident in Hudsonian and Canadian zones. Several were seen at Bubbs Creek, 8000 feet, on August 27, 1916, and one at Bullfrog Lake, on September 6, 1916 (Swarth). One specimen was collected near Horse Corral Meadow* on September 21 (Swarth, 1916). One observed at Woods Lake on August 11, 1940, and two seen on August 26, 1940, at Fallen Moon Meadow (Sumner, 1941). Observed at Panorama Point in June, 1941, and at Paradise Valley in June (Bryant, 1941). One Sierra Hermit Thrush was preserved on May 11, 1942, at Lewis Creek (no. 9202, J. S. Dixon) and was identified by Miller as *sequoiensis*. At the mouth of Evolution Creek the Sierra Hermit Thrushes were still singing on July 22, 1942. On July 26, 1942, Hermit Thrushes were singing in the lodgepole pines along McGee Creek, and on July 28, 1942, at the upper end of Evolution Valley, two of these thrushes were watched as they fed a bobbed-tailed youngster just out of the nest (Dixon).

Hylocichla ustulata ustulata. Russet-backed Thrush. Summer resident in willows along streams in Transition and Canadian zones. Observed from June to August, 1940, in Kings Canyon and from July to August, 1940, at Paradise Valley (Bryant, 1941).

Sialia mexicana occidentalis. Western Bluebird. Summer resident along western margin of area. Seen at General Grant during September, 1940 (Bryant, 1941). The first spring arrival was noted May 6, 1942, at 6500 feet on Stag Dome. On May 17, 1942, on north rim of the south fork of Kings Canyon between Lewis Creek and Hotel Creek, a breeding pair of Western Bluebirds was found at 6000 feet. They were mating and nesting in a woodpecker hole in a dead yellow pine stub on a warm south-facing hillside (Dixon).

Sialia currucoides. Mountain Bluebird. Fairly common summer resident near timber line. On August 28, 1916, several were seen at Bullfrog Lake (Swarth). Two were observed at Center Basin on August 7, 1940; eight at Woods Lakes Basin, August 11, 1940; one at timber line in Upper Basin on September 3, 1940 (Sumner, 1940). Seen at Granite Pass, August 1, 1940 (Bryant, 1941).

Myadestes townsendi. Townsend Solitaire. An unobtrusive summer resident in Canadian and Hudsonian zones. Found at lower elevations during the winter. The species was observed at Bubbs Creek junction in June, 1940, by Bryant. One was seen on August 26, 1940, near Granite Pass and four together at Dusy Lakes, August 29, 1940 (Sumner, 1941). In the fall one was seen on Septem-

ber 18, 1916, at Summit Meadow (Swarth), and was recorded at General Grant in September, 1940 (Bryant, 1941). The first spring arrival was seen on May 6, 1942, at 6700 feet on Stag Dome. Two were seen on May 9, 1942, at Lewis Creek. A pair was seen mating at head of Sheep Creek on May 14, 1942. A pair in nuptial flight and singing loudly was seen on May 16, 1942, at Little Creek (Dixon).

Poliophtila caerulea amoensis. Western Gnatcatcher. An occasional late summer visitant along lower western margin of the park. Three were seen at Kanawyers on September 10-17, 1916 (Swarth). Observed at Copper Creek, July, 1940 (Bryant, 1941). Seen only once near Lewis Creek, August 1, 1940 (Sumner, 1941).

Regulus satrapa olivaceus. Western Golden-crowned Kinglet. Spring and fall migrant and summer resident in the fir belt. At Horse Corral Meadow* two specimens were collected; one male (no. 27547) was taken on September 22, 1916 (Swarth). Observed in Kings Canyon on September 24, 1940, and at General Grant, September to October, 1940 (Bryant, 1941). Sumner saw a flock on August 25, 1940, at Halfmoon Meadow.

Regulus calendula cinereus. Western Ruby-crowned Kinglet. Spring and fall migrant and summer resident in the Canadian and Hudsonian zones. Two specimens were taken at Bullfrog Lake, August 30, 1916 (White). One seen at Bullfrog Lake, August 27, 1916, and one at Charlotte Lake, September 2, 1916. Also seen nearly every day at Kanawyers, September 14-17, 1916; numerous along western boundary of the park near Horse Corral Meadow*, September 18-24, 1916 (Swarth).

Anthus spinoletta rubescens. American Pipit. Fall migrant. A good-sized flock was seen on the meadow along the west boundary of the park near Horse Corral Meadow* on September 20, 1916 (Swarth).

Vireo solitarius cassinii. Cassin Solitary Vireo. A summer resident. Two were seen at Kanawyers on September 10, 1916, and others were observed there at the rate of about one a day in September (Swarth). Recorded at General Grant (Shaw, 1936) and Kings Canyon in July, 1940 (Bryant, 1941). Three were seen and heard on May 9, 1942, inside the park at Lewis Creek. Miller heard and saw this vireo on Sheep Creek trail up to 6000 feet on May 21, 1942.

Vireo gilvus swainsonii. Western Warbling Vireo. Common summer resident. Recorded at Kings Canyon, July, 1940 (Bryant, 1941), and at General Grant (Shaw, 1936). Seen and heard on Sheep Creek trail up to 6000 feet on May 21, 1942, by Miller.

Vermivora celata lutescens. Lutescent Orange-crowned Warbler. Summer resident. One seen just below Bullfrog Lake where a specimen (no. 27463) was collected on September 6 (Dixon). One seen September 3, 1916, at Charlotte Lake. Three or four seen at Kanawyers, September 10-17, 1916, and a specimen collected there September 16. Several seen, seemingly in migration, on September 24, 1916, at Horse Corral Meadow* and a specimen (no. 10364) collected on September 20.

Vermivora ruficapilla ridgwayi. Calaveras Warbler. Summer resident. Seen at Copper Creek, August 6, 1940 (Bryant, 1941). One seen at 6600 feet on Bubbs Creek, August 26, 1916 (Swarth). On May 21, 1942, at Sheep Creek, Calaveras Warblers were heard singing by Miller in the pines above scattered ceanothus bushes.

Dendroica aestiva brewsteri. California Yellow Warbler. Summer resident. One was seen at Hume*, August 17, 1916 (Swarth). Seen at General Grant (Shaw, 1936). Seen at Big Stump*, June, 1940, and in Kings Canyon, June to August, 1941 (Bryant, 1941).

Dendroica auduboni auduboni. Audubon Warbler. Summer resident. Several groups were seen at Bullfrog Lake, some feeding young, on September 2, 1916; the species was rare, only one or two being seen daily at Kanawyers, September 10-17, 1916 (Swarth). Seen at General Grant (Shaw, 1936, and Bryant, 1941). Sumner found a nest at Granite Basin with nearly grown young on July 23, 1940. Noted at Little Pete Meadow, August 29, 1940, one at north side Mather Pass, September 3, 1940, one at south side Cartridge Pass, September 4, 1940, and two at Cub Meadow, September 27, 1940 (Sumner, 1941). First seen in spring on May 6, 1942, at 6500 feet on Stag Dome. One pair was seen mating in ponderosa pine forest near Lewis Creek on May 16, 1942. At Hotel Creek three were seen in yellow pines at 7000 feet, on May 20, 1942. Seen and heard, May 21, 1942, by Miller at Cedar Grove. On July 27, 1942, three were seen at McClure Meadow in Evolution Valley (Dixon).

Dendroica nigrescens. Black-throated Gray Warbler. Summer resident in canyon live oaks. Swarth took a specimen (no. 27475) at Hume*, August 19, 1916. Seen at Kings Canyon, July, 1940, and at General Grant, May, 1941 (Bryant, 1941). One was seen, May 8, 1942, at Lewis Creek (Dixon). Miller saw one May 21, 1942, on the Sheep Creek trail.

Dendroica townsendi. Townsend Warbler. A rare fall migrant. One specimen (no. 27476) was collected, September 20, 1916, along the western boundary of the park near Horse Corral Meadow* (Swarth).

Dendroica occidentalis. Hermit Warbler. Spring and fall migrant, and summer resident. Several were seen at Bullfrog Lake, September 1-7, 1916. Two specimens (nos. 27477, 27478) were taken at

Hume*, August 18, 19, 1916 (Swarth). Found in the conifers at General Grant (Shaw, 1936). Seen at General Grant in June, 1940, and May 24, 1941 (Bryant). One adult male, the first of the season, was seen at 6800 feet on May 6, 1942, at Stag Dome (Dixon). Miller records "Hermit Warblers singing in the sugar pines at the bench on Sheep Creek" on May 21, 1942.

Oporornis tolmiei. Macgillivray Warbler. Summer resident. One seen at Bullfrog Lake, August 27, and September 7, 1916. A specimen (no. 27480) was collected at Bullfrog Lake, September 1, 1916. This species was found in migration in considerable numbers on September 24, 1916, near the west boundary of the park in and near Horse Corral Meadows*. Seen May 26, 1941, in Kings Canyon (Bryant, 1941). First seen May 8, 1941, at Lewis Creek. One seen May 16, 1942, at Little Creek (Dixon).

Wilsonia pusilla chryseola. Golden Pileolated Warbler. Summer resident. One seen August 27, 1916, near Bullfrog Lake and a female (no. 27484) collected at Bubbs Creek, September 3, 1916 (Swarth). A few were seen in the wet meadow near Kanawyers, September 10-17, 1916 (Swarth). Reported in wet meadows at General Grant section (Shaw, 1936); also seen there in June, 1940 (Bryant, 1941). One was seen in willow thicket at 8000 feet on Hotel Creek on May 20, 1942. One was noted in a dwarf willow at 10,700 feet on Darwin Creek on July 28, 1942 (Dixon).

Sturnella neglecta. Western Meadowlark. Occasional summer visitor on meadow land. Only two records. One was seen on August 18, 1916, at Hume* (Swarth), and one was seen at Woods Creek Meadow, 8500 feet, August 27, 1940 (Bryant, 1941).

Agelaius phoeniceus nevadensis. Nevada Red-wing. Summer resident. Nested at Zumwalt Meadow, July, 1940 (Bryant, 1941). Two pairs of Red-wings preparing to nest were found in the cattail swamp at Zumwalt Meadow on May 25, 1942. On May 26, 1942, six female Nevada Red-wings and two males were found breeding in the cattail swamp. On May 27, 1942, at Zumwalt Meadow, I collected an adult breeding female Red-wing (no. 9215, J. S. Dixon) which Miller states is clearly *nevadensis*. The size of the ovaries showed she was about to lay eggs. Her gullet contained four green caterpillars each three-fourths inch in length. On July 30, 1942, on the south fork of the San Joaquin River I saw a female Red-wing in a pond grown up to tules at the lower end of Blaney Meadow; apparently both Red-wings and Song Sparrows breed here. However, I found no evidence that either species goes up into the park along the south fork of the San Joaquin.

Icterus bullockii. Bullock Oriole. Occasional summer resident. One observed on August 20, 1916, at Hume* (Swarth). First spring arrival noted on May 25, 1942, at Zumwalt Meadow. One seen, May 29, 1942, at Cedar Grove (Dixon).

Euphagus cyanocephalus. Brewer Blackbird. Summer visitant to higher mountain lakes and meadows. Forty were seen at Hume* on August 23, 1916 (Dixon); also noted at Horse Corral Meadow* (Swarth, 1916). Reported as occasional in meadows at General Grant (Shaw, 1936). Nested at General Grant in June, 1940. Seen at Sixty Lake Basin, August 29, 1940 (Bryant, 1941). One female seen at Rae Lake and a male at Dougherty Meadow, September 6, 1940 (Sumner, 1941).

Piranga ludoviciana. Western Tanager. Summer resident. I collected a female (no. 27454) at Bullfrog Lake, September 2, 1916. Nested in Kings Canyon, July, 1940 (Bryant, 1941). First spring arrival noted May 16, 1942, at Little Creek (Dixon).

Hedymeles melanocephalus. Black-headed Grosbeak. Summer resident. In 1916 Dixon and Swarth found a characteristic feather and a used nest of this species at Kanawyers but saw no birds. Two were seen at Hume*, August 18 (Swarth, 1916). Nested at General Grant in July, 1940 (Bryant, 1941). First arrivals in spring were noted May 6, 1942, when two males were seen and heard singing at 5000 feet on Stag Dome (Dixon).

Passerina amoena. Lazuli Bunting. Rare summer vagrant. One male was seen on July 31, 1940, in a chinquapin thicket along the trail to Coffee Mill Meadow at an elevation of 10,000 feet (Sumner, 1941).

Hesperiphona vespertina brooksi. Western Evening Grosbeak. Summer visitant; also spring and fall migrant. Found among conifers (Shaw, 1936, and Graff, 1936). Seen at Dougherty Meadows, August 2, 1940 (Bryant, 1941).

Carpodacus purpureus californicus. California Purple Finch. Summer resident. A specimen (no. 10228) was taken on August 22, 1916, by Swarth at Hume*. First spring arrival noted May 8, 1942, at Lewis Creek where two were seen. On May 9, 1942, an adult breeding male (no. 9200, J. S. Dixon) was collected; identification checked by Miller. On May 27, 1942, at Zumwalt Meadow, one adult male (no. 9214, J. S. Dixon) in breeding condition was collected (Dixon). Miller found California Purple Finches in cottonwoods at Cedar Grove on May 21, 1942.

Carpodacus cassinii. Cassin Purple Finch. Summer resident. A few seen at Kanawyers, September 10-17, 1916. Four seen near Bullfrog Lake on September 4, 1916 (Dixon). At McClure Meadow, Evolution Valley, on July 25, 1942, I found a pair of Cassin Purple Finches eating mud at a mineral spring near the center of the meadow. This behavior was again verified on July 27, when I visited

this spring and found sixteen adults and immatures and collected an adult male (no. 9222, J. S. Dixon) in the act of eating mud. A post-mortem examination showed that the throat and gullet were both full of mud. On July 28, 1942, at Evolution Valley, one female was watched as she fed a bobbed-tailed youngster just out of the nest and barely able to fly (Dixon). On May 21, 1942, Miller saw and heard Cassin Purple Finches along Sheep Creek trail at 4800 to 6800 feet.

Pinicola enucleator californica. California Pine Grosbeak. Rare resident. On July 25, 1942, at 9000 feet on Evolution Creek I went down along the bare, glaciated granite near its point of contact



Fig. 55. Typical habitat of the Rosy Finch. Evolution Basin looking toward Muir Pass; July 26, 1942.

with the silicated limestone and in a crevice above the stream I found a male California Pine Grosbeak in full red, breeding plumage feeding on the red, ripening fruit of a twin-berry bush. The male was soon joined by his mate and the two fed quietly together for several minutes within 20 feet of me; I was able to examine them in good light with 8-power binoculars. This locality is the southernmost known record station for this subspecies (Dixon, Condor, 44, 1942:280).

Leucosticte tephrocotis dawsoni. Sierra Nevada Rosy Finch. Resident. Found in summer about the higher peaks, talus slides and lakes above timber line. On August 30, 1916, two Rosy Finches were seen feeding young at 12,500 feet on Mount Gould just west of Kearsarge Pass (Swarth and Dixon) and on August 28 a flock of between 40 and 50 Rosy Finches was seen at a little lake near the west end of Kearsarge Pinnacles and both adult and immature birds (nos. 27267, 27268) were collected (Swarth). Three or four were seen, August 9, 1940, on snow banks at Glenn Pass and a flock of about seven was seen on snow one mile east of Muir Pass, September 1, 1940 (Sumner, 1941). Seen at Glenn Pass and East Lake, August, 1940 (Frances Payne). On July 26, 1942, at McGee Lakes, 10,900

feet, I found many Rosy Finches feeding along the rocky margin of the lakes. On the John Muir Trail, July 28, 1942, at the upper end of Evolution Valley (fig. 55), I watched a Rosy Finch eating buds and flowers of a dwarf *Collinsia*. On that day in Darwin Canyon at Evolution Lake and at 11,000 feet on Darwin Creek Rosy Finches were abundant. I actually counted over 100 in the course of one day that were feeding on the buds and opening flowers of dwarf buckwheat and other plants growing close to the ground. I have never before seen them feeding so largely on the green flowering parts of plants (Dixon, 1942).

Spinus pinus pinus. Northern Pine Siskin. Transient, found in the higher forested areas of the park. On September 2, 1916, a few were seen at Bullfrog Lake and on September 3, 1916, several were seen at Charlotte Lake (Swarth). One noted on July 31, 1940, near Coffee Mill Meadow (Sumner, 1941).

Spinus psaltria hesperophilus. Green-backed Goldfinch. Summer visitant. Several were seen by us at Hume* on August 19, 1916. I also saw one on September 2, 1916, at 11,000 feet, near Bullfrog Lake (Dixon). One seen in the meadow at Kanawyers on September 17, 1916 (Swarth).

Loxia curvirostra. Red Crossbill. Summer visitant at timber line; slightly lower in winter. Three Red Crossbills were seen on August 28, 1916, and several heard near Bullfrog Lake, September 6, 1916 (Swarth). On July 25, 1942, at McClure Meadow, an adult male was found feeding in a lodgepole pine (Dixon).

Oberholseria chlorura. Green-tailed Towhee. Summer resident. One was seen at Charlotte Lake, September 2, 1916. Noted as rather common, July 31, 1940, in vicinity of Coffee Mill Meadow and one seen, September 3, 1940, in a willow at timber line on the north side of Mather Pass (Sumner, 1941). Seen at Grant section (Bryant, 1941).

Pipilo maculatus falcinellus. Sacramento Spotted Towhee. Resident. Several were seen at Kanawyers, September 10-17, 1916 (Swarth). A male (no. 27423) was collected by White at Kanawyers, September 17, 1916. Seen on floor of Kings Canyon (Bryant, 1941). This species is also reported from General Grant (Bryant, 1941). Two seen, September 27, 1940, on warm south-facing slope at Hotel Creek (Sumner, 1941). Two were seen at Lewis Creek on May 8, 1942 (Dixon).

Pipilo fuscus carolae. Sacramento Brown Towhee. Late summer visitant. Seen in southern part of General Grant area (Barclay and Jamison, 1937, and Bryant, 1941).

Passerculus sandwichensis. Savannah Sparrow. Fall migrant. A sparrow was examined at close range with aid of binoculars at Bullfrog Lake, 10,634 feet, on August 27, 1916, and identified as this species (Swarth).

Amphispiza bilineata deserticola. Desert Sparrow. A fall migrant. One specimen (no. 27320) was collected by Swarth near Charlotte Lake, September 3, 1916. Because of the immature plumage of this individual, Swarth thought the species might nest at Charlotte Lake west of the Sierran crest. The other more probable alternative is that this young individual came over Kearsarge Pass during late summer.

Junco oreganus thurberi. Thurber Oregon Junco. Common summer resident over most of the park. An adult female specimen was collected, August 23, 1916, at Bullfrog Lake (Swarth, 1916). On September 4, 1916, thirty were counted between Charlotte and Bullfrog lakes. Contrasted to this, juncos were rare at Kanawyers, August 27-September 17, 1916, only one small flock of 8 or 10 being seen (Swarth). In 1940, they were found in abundance almost throughout the park by Sumner who records them on July 31 at 10,500 feet on Lewis Creek and on August 4 they were abundant at East Lake. On September 4, found numerous near Cartridge Pass and on September 22 a few were seen in Deadman Canyon (Sumner, 1941). On May 9, 1942, at Lewis Creek, two were seen inside the park. Eight were seen between Cedar Grove and Lookout Peak. On July 27, 1942, juncos were common at Colby Meadow in Evolution Valley where fourteen were counted in one day (Dixon).

Spizella passerina arizonae. Western Chipping Sparrow. Summer resident. A few seen at Kanawyers, September 10-17, 1916 (Swarth). Two were seen between Bullfrog and Charlotte lakes, September 5, 1916. On August 21, 1941, on the floor of Kings Canyon above Cedar Grove, I watched a Cooper Hawk walking around a small clump of manzanita that was isolated out in an open flat. When I stopped to investigate, I drove the hawk away and found a Western Chipping Sparrow closely hidden in the dense brush near the ground where it had evidently taken refuge from the hawk. Specimen no. 559, H. G. White, was collected at 9900 feet on Bubbs Creek, September 3, 1916. On May 17, 1942, a pair was observed mating near Lewis Creek and on July 27, 1942, two were seen at McClure Meadow in Evolution Valley (Dixon).

Zonotrichia leucophrys leucophrys. White-crowned Sparrow. A summer resident breeding in the high meadows and willow thickets near timber line. On August 28, 1916, I saw and counted ten birds of this species at Bullfrog Lake, 10,634 feet, and on August 24, 1941, I saw three, two adults and one young, at Reflection Lake, 10,168 feet. On September 5, 1916, I saw one between Charlotte and

Bullfrog lakes. Specimens (nos. 27281, 27282, male and female) were collected at Bullfrog Lake, August 30, 1916 (Swarth). Reported as a fall migrant at General Grant (Bryant, 1941). The first spring arrival inside the park was seen after a snow storm on May 12, 1942, at Lewis Creek. On July 26, 1942, at Evolution Lake, White-crowned Sparrows were numerous among the willows at the upper end of Evolution Lake. At Colby Meadow White-crowned Sparrows were fairly common, six being counted in the willows on July 27, 1942. Several were seen in the willows at Evolution Lake and a pair with young just out of the nest was seen at 10,300 feet in willows on Darwin Creek on July 28, 1942 (Dixon).

Zonotrichia leucophrys gambelii. Gambel White-crowned Sparrow. A fall and winter migrant arriving from the north in the fall about the time the breeding White-crowns leave; departs in the spring about the time the White-crowns return. Thus in 1916, the first Gambel Sparrow was seen along the western boundary of the park near Horse Corral Meadow* on September 20, and they became numerous two days later. Many seen at close range at Hume*, September 26, 1916 (Swarth).

Passerella iliaca altivagans. Alberta Fox Sparrow. Fall and winter visitant. Specimen (no. 26364) taken at Horse Corral Meadow*, September 22, 1916 (Swarth, 1920).

Passerella iliaca insularis. Kodiak Fox Sparrow. Fall migrant. Specimen (no. 27370) taken at Hume*, September 25, 1916 (Swarth, 1920).

Passerella iliaca sinuosa. Valdez Fox Sparrow. Fall and winter visitant. Specimen (no. 27369) taken at Horse Corral Meadow*, September 22, 1916 (Swarth, 1920).

Passerella iliaca schistacea. Slate-colored Fox Sparrow. Fall migrant. Two specimens were taken on the floor of Kings Canyon at 5000 feet, at Kanawyers, on September 12, 1916 (no. 27373) and on September 15, 1916 (no. 27371) (Swarth, 1920).

Passerella iliaca mariposae. Yosemite Fox Sparrow. Fall migrant. Specimen (no. 27384) taken at Horse Corral Meadow*, September 20, 1916; another (no. 27385), same locality, September 22, 1916 (Swarth, 1920).

Passerella iliaca stephensi. Stephens Fox Sparrow. Common summer resident. Many specimens collected (Swarth, 1920).

Swarth in his "Review of the Genus *Passerella*" in 1920, found six kinds of fox sparrows in the Kings Canyon area. All six races are verified by actual specimens which we collected in 1916 and which are in the Museum of Vertebrate Zoology. Of the six kinds, two, the Valdez and Alberta fox sparrows, are fall and winter visitors. Two others, the Kodiak and Slate-colored, are fall migrants usually wintering farther south. The Yosemite Fox Sparrow may breed in the northern portion of the park. The Stephens Fox Sparrow is the common breeding form at General Grant and at Kings Canyon. The first spring arrival was noted May 11, 1942, at Lewis Creek. On May 12, 1942, two Stephens Fox Sparrows were seen in manzanita thickets inside the park and by May 14, at Sheep Creek, six were seen, some carrying nest material. On May 20, 1942, at Hotel Creek, 12 birds were seen in chinquapin and snow brush and several were carrying nest material. Males were then in full song. On May 29, 1942, on the east face of Lookout Peak below Summit Meadow, I counted 10 breeding Fox Sparrows in full spring song (Dixon). Miller records that on May 21, 1942, he found many at 6500 feet on Sheep Creek trail amid chinquapin and snow brush. I saw two at Junction Meadow on Bubbs Creek, August 23, 1941. Numerous young on the wing seen on July 31, 1940, in Lewis Creek Basin.

Melospiza lincolni alticola. Montane Lincoln Sparrow. Rare summer resident. Nested at General Grant Meadow in June, 1940, and in July, 1941 (Bryant).

Melospiza melodia heermanni. Heermann Song Sparrow. A summer visitant along Kings River. I saw one and heard another at Zumwalt Meadow, August 17, 1916. Swarth shot a sparrow at the same locality but was unable to find it in the cattails. Without a specimen it is impossible to state the exact geographic race represented. On May 9, 1942, at Zumwalt Meadow, none could be found in the cattail swamp; vegetation was not up enough to give any real protection. On May 25, 1942, at Zumwalt Meadow, one Song Sparrow was seen in the willows beside the cattail swamp. On May 26, 1942, at Zumwalt Meadow, two Song Sparrows were seen and one breeding male (no. 9308, J. S. Dixon) collected. One Song Sparrow was caught in a mouse trap set at the edge of the water on May 27, 1942. Two Song Sparrows were seen in a wet meadow near a patch of tules on July 22, 1942, at Blaney Meadow*. It is not believed likely that any move up as far as the mouth of Piute Creek or into the park along the south fork of the San Joaquin River (Dixon, 1942).

United States Fish and Wildlife Service, Berkeley, California, April 30, 1943.

CENSUS OF A COLONY OF CASPIAN TERNS

By ALDEN H. MILLER

Students of birds in the San Francisco Bay region have derived satisfaction and pleasure in the success of a nesting colony of Caspian Terns (*Hydroprogne caspia*) situated in the marshes of the south arm of the Bay, not far from Dumbarton Bridge. This ternery was discovered in 1922 when it consisted of but 7 pairs (De Groot, Condor, 33, 1931:188-192); by 1930 it had grown to 296. Since De Groot's last count in 1931, no published record of the colony's later progress seems to have been offered, although a number of people have visited it and ascertained that it was in thriving condition.



Fig. 56. Caspian Terns standing near nests at colony near Dumbarton Bridge, Alameda County, California, May 21, 1943; photo by the author.

On May 21, 1943, I had opportunity to go to the ternery and to make a census. Part of a census-taker's business is to pose questions so that he may embellish his general count with subsidiary figures and better interpret the lives of his subjects. At once I saw certain variables in the population of which I might keep track, but as is often true, subsequently I thought of still other data that should have been accumulated.

Mrs. T. Eric Reynolds, who accompanied me to take motion pictures, had ample time to photograph, for it took from 11 a.m. to 5 p.m. to "do" the colony. Two hundred yards away, as we walked along the levee toward the site, the terns came out to meet us, bowling along with powerful wing strokes and then diving shallowly over our heads. When under full speed in the approach, they uttered a staccato *ca, ca, ca, ca* of moderate intensity which burst into the full raucous *crau-au* as they swung over us. Accenting this intimidation note, so it seemed, was the simultaneous wide opening of the

gullet, vertically and laterally. This great red opening and the massive red bill seemed to capture all one's attention as he watched the on-plunging bird. As it veered off, the prevailing white plumage was patterned by the black crown, eye and under wing tip and by the small black feet held back and pressed together to form a neat "V."

Hatching had begun, especially in two sections of the continuous nesting area that were the highest parts of the levee in this region. Perhaps the colony had been divided earlier and only more recently had the low intervening sections been settled. But eleva-



Fig. 57. Adult and juvenal Caspian Terns at nest, June 2, 1943;
photo by Kathleen Dougan.

tion was not the only factor in choice of site, for clustered about the high points (6 feet) at levels scarcely 2 feet above the bordering salt ponds, were equally advanced nests. Desire for propinquity, so prominent in this and other nesting terns, must have induced birds early to cluster about the favored high spots even though this meant that some had to take low positions, lower actually than in the new districts of the colony. Spacing in these two centers was closer, sometimes being only 2 feet, whereas generally nests were 6 to 10 feet apart.

Some young were seen that were about one-third grown and must have been at least a week old. These ran easily along the levee between the nests and often took to the water. Young apparently but two days old would venture a yard or two before toppling over and crouching down. Usually unless touched or closely inspected they remained flattened in their original nest hollows and newly hatched young lay seemingly exhausted, outstretched on the ground.

We were at once impressed by the variable appearance of the downy young. They were essentially of two color phases as mentioned by De Groot (*op. cit.*:190). The dark type (as in Mus. Vert. Zool. no. 88382) is a light wood brown, the light type (no. 88381) an extremely pale creamy white with a few wisps of black on the backs and wings. So distinctive are these types that one may with few doubts classify young seen even at some distance on the water. The dark birds have a sooty throat patch, dark skin and dusky olive feet; the light birds are essentially as white on the throat as on the belly, the skin is light yellowish and the feet are dull orange. Careful search disclosed a few birds of intermediate aspect which fell into two categories: one (no. 88383) had no brown pigment but was liberally flecked with black above and had a dark throat and

dark feet and skin; the other (no. 88380) was pale yellowish above with no more black flecks than in the completely pale type and it possessed a faintly gray throat, orange feet and light skin. The fully dark type seems to combine the black and yellowish pigments of these two intermediates.

The two principal phases were found represented among newly hatched young in the same nest (see fig. 58). Young examined closely enough that they could be classified as to phase totaled 110. Of these 62 were of the dark type, 40 of the light type, and 8 of some sort of intermediate coloration. Nests with two or more recently hatched young showed the following combinations: 1 light and 1 dark, 6; 2 light, 1; 2 dark, 3; 3 dark, 1; 2 intermediate, 1; 1 dark and 1 intermediate, 1. These young all were too feeble to have strayed from their home nest.



Fig. 58. Newly hatched terns in "nest," showing dark and light phases of downy plumage, May 21, 1943; photo by the author.

This situation with respect to phases suggests that there is a small number of hereditary factors controlling down color and that they freely segregate. The genes for the two main types seem both to be of high frequency in the population. It would be worthwhile to make subsequent counts of the phases in this colony and similarly to check other colonies to obtain some evidence of possible fluctuations in gene frequencies. One might expect them to fluctuate toward one extreme or the other, although the breeding population is large and closely knit and if there are no selective factors, the variability of the population may persist in its present state more or less indefinitely according to Hardy's principle (see Dobzhansky, *Genetics and the Origin of Species*, 1937:123).

At this particular colony I could not see that one color type was better adapted for concealment than the other. The dark birds may have been a little less conspicuous than the light ones, but they were definitely darker than the silt of the levee and the light birds were lighter than the substrate. There may not be much selection of color types in a compact colony of this kind of bird whose young, unlike those of grouse or quail, are rather well protected from terrestrial predators by their aggressive and formidable parents if not by the isolated situation of the colony. The number of dead young which I counted was only 8 and included all color types; such a sample obviously is too small to yield conclusions on differential mortality. It is to be noted that



Fig. 59. Nest of Caspian Tern, showing maximum amount of nest material. Two light objects on lower left margin of nest are pellets of fish scales.



Fig. 60. Two light-phase young with egg about to hatch. Nest rim composed chiefly of shells.

these distinct phases of the downy young have no counterparts in the plumages or foot color of the adults which at any one season are uniform in appearance.

The colony, when we visited it, was apparently close to the former locations upon which De Groot reported. The section of levee occupied was 175 yards long; the maximum width was 14 yards but most of the nests were in a 9-yard strip along the crown of the levee. Much driftwood and debris was scattered about and frequently was used in the nests. These varied from mere spots scraped down to hard dirt, to rims of little clods or oyster shells and to piled up masses of wood and stick debris (fig. 59). Often

one could find pellets of fish scales and bones deposited on the rims of nests by incubating birds (see fig. 59). These were friable to an extreme, having no binding material as in owl pellets. Many eggs were muddy, perhaps the result of wet feet or blown spray coupled with normal turning and moving of them by the parent birds, but we saw no sure sign of damage due to wind and high water as reported by De Groot. Seemingly the levee is somewhat higher now than it was formerly. Eggs commonly were found scattered about the colony out of the nests, but they did not give evidence of having been blown or washed about.

Tabulation of nest contents and of totals of eggs and young is as follows:

| No. in nest | Nature of contents | No. of nests |
|---------------|---|--------------|
| 1 | eggs, 99; young 12 | 111 |
| 2 | 2 eggs, 193; 1 egg, 1 young, 15; 2 young, 11 | 219 |
| 3 | 3 eggs, 29; 2 eggs, 1 young, 8; 1 egg, 2 young, 2; 3 young, 1 | 40 |
| 4 | 4 eggs, 2; 3 eggs, 1 young, 3; 1 egg, 3 young, 1 | 6 |
| 5 | 5 eggs | 2 |
| Totals | | |
| | Occupied nests | 378 |
| | Estimated empty nests | 22 |
| | Estimated nesting pairs | 400 |
| | Eggs in nests (some at least fresh) | 633 |
| | Eggs out of nests | 51 |
| | Eggs in and out of nests | 684 |
| | Young in nests | 70 |
| | Young out of nests (includes 8 dead; probably about 20 not here included were overlooked) | 62 |
| | Young in and out of nests | 132 |
| | Grand total of eggs and young | 816 |
| | Total eggs and young with chance of survival on May 21 | 757 |

To review the progressive increase in the colony we may best use De Groot's figures for maximum number of occupied nests known for each season. There is of course a source of error in the fact that the number may not have been checked each year at the peak of the season; the peak seemingly does not coincide in date in different years. Nevertheless the approximate growth rate of the colony is shown.

| Year | Occupied nests | Date |
|------|------------------|---------|
| 1922 | 7 | |
| 1923 | 2 | |
| 1924 | 12 | |
| 1925 | 35-50 (estimate) | |
| 1926 | 164 | July 4 |
| 1927 | 212 | June 11 |
| 1928 | 242 | June 14 |
| 1930 | 296 | June 8 |
| 1931 | 287 | June 3 |
| 1943 | 378 | May 21 |

About the colony in 1943 we found occasional fishes left by the side of nests with newly hatched young (see fig. 61). These consisted of three species (identifications by Garth Murphy): bullhead (*Leptocottus armatus armatus*); bay smelt (*Atherinops affinis affinis*); viviparous perch (*Cymatogaster aggregatus*). The perch were by far the most commonly represented. These rather spiny fish, 2 to 3 inches long, were fed

with only the head removed to young no more than two days old. Pieces of smelt 2 inches long were spit up by similarly small young. Juveniles at hatching weigh about 40 grams, but after their first fish meal of such proportion they jump to almost 60 grams.

All fishing by the adults was done at some distance, for we saw no diving in the adjoining salt ponds. The old birds flew in with apparently just a single fish held cross-ways in the beak. We had no opportunity to watch feeding of the young and it is possible therefore that more fish were carried concealed in the throat, as De Groot implies.



Fig. 61. Tern nests, showing viviparous perch (on board) brought for newly hatched young.

As we left the colony, older young were paddling back to the levee and seeking refuge among the clods along the shoreline. A breeze had whipped up small waves and they had become waterlogged. In the downy stage the terns certainly are not well equipped to swim far in rough water. Old birds, seemingly recognizing their own young, flew over them as they swam and settled by them on the shoreline as they sluggishly climbed out to dry off. Such young could not be induced to try the water again.

Museum of Vertebrate Zoology, Berkeley, California, July 19, 1943.

THE RACES OF THE KNOT (*CALIDRIS CANUTUS*)

By BOARDMAN CONOVER

There has been some confusion as to the races of the Knot (*Calidris canutus*), especially those found in the Nearctic region. Whereas Ridgway recognized only one, both the latest A.O.U. Check-list and Peters suggest that there may be three forms nesting between Greenland and Alaska. To try to throw some light on this question, I have borrowed a number of specimens, which, together with those in my own collection and that of the Field Museum of Natural History in Chicago, have given me some two hundred specimens for examination. Unfortunately, it was found that the plumage of birds in breeding dress seems to wear and fade very rapidly so that breeding specimens and many northern migrants were only of slight value for comparative purposes. In making these racial studies, therefore, only examples falling within the following three groups were used: (1) adults in comparatively fresh breeding plumage collected in the months of April, May, and June; (2) adults in winter plumage; and (3) young of the year in immature plumage taken from August to November. It is this last group that shows the racial characteristics most clearly.

For the loan of material I wish to thank John W. Aldrich of the Fish and Wildlife Service, A. M. Bailey of the Colorado Museum of Natural History, Herbert Friedmann of the United States National Museum, James L. Peters of the Museum of Comparative Zoology, Thurston Wright of the Chicago Academy of Sciences, and John T. Zimmer of the American Museum of Natural History.

ADULTS IN BREEDING PLUMAGE

A fine series of specimens from the eastern coast of the United States in fresh breeding plumage and a number from the interior is available in the Field Museum. Unfortunately, only an occasional specimen from the much smaller series of European and Asiatic specimens examined is in like plumage. From the Pacific coast of North America, only one example in comparable dress is available; Alaskan birds are too worn to be of much use. Therefore, the specimens in this group left much to be desired when it came to distinguishing racial characteristics, and only rather general broad deductions could be made.

Specimens from the eastern coast taken in May are very light colored on the upperparts and have a very grayish appearance especially on the hind neck and crown. They show only a moderate amount of rufous. Specimens from Saskatchewan and Alberta are the same, but seem on the average to have more rufous on the scapulars and tertials. The European series, though the plumages are more worn, gives an impression of being redder, less grayish above, with the rusty coloring darker and much more in evidence on the back of the neck and crown. The three Greenland specimens were taken some years ago and are somewhat stained, but appear to have the rusty hind neck and crown of the European birds.

In the small series from Asia there is great variation. While the specimen in the freshest plumage, an April bird from Shanghai, is as light above as the majority from the eastern coast of America, two others, one from Thailand and one from Fukien, have very dark rusty coloring and resemble European examples. The rest seem intermediate between European and eastern American specimens. Alaskan birds, as stated, are too worn to be of much use, but the single specimen from the coast of Washington agrees with the majority in the Asiatic series.

On the underparts, while the European and Greenland birds seem to show a strong tendency toward a darker, richer red coloring, the variation in both the European and American series is so great that this feature has little value as a distinctive racial characteristic.

To summarize, from these specimens it appears that in breeding plumage, European and Greenland specimens are darker and more rusty above than birds from the eastern coast and interior of North America, whereas examples from eastern Asia (and probably the Pacific coast of North America) are intermediate.

Specimens examined—Europe and Greenland: England (Pagham Harbor, 1); France (St. Vigor, 2; St. Valery, Somme, 1; Havre, 1); Greenland (unspecified, 3). Total, 8.

Asia and Pacific coast of North America: China (Shanghai, 7; Fukien, 2); Thailand (Me Klong, 1); Alaska (Barrow, 1; St. Michaels, 2; Hooper Bay, 1; Sitka, 1); Washington (Long Beach, 1). Total, 16.

Interior and Atlantic coast of North America: Canada (Ft. Simpson, Mackenzie, 1; Lake Athabaska, 3; Tofield, Alberta, 4; Lake Johnson, Saskatchewan, 7); New York (Cayuga, 3); North Carolina, Dare County (Bodie Island, 8; Pea Island, 15); South Carolina (Mt. Pleasant, 1; Dewee's Island, 1). Total, 43.

ADULTS IN WINTER PLUMAGE

The available specimens of a limited series were taken on greatly scattered dates throughout the winter from November to April. No differences in color correlated with locality were found.

Specimens examined—Europe: England (Burnham, Somerset, 3; Kingsbridge, Devon, 1; Blackpool, Lancashire, 1; Fleetwood, Lancashire, 1; Fairhaven, Lancashire, 1); Hungary (unspecified, 1). Total, 8.

Asia: Thailand (Me Klong, 2; Ban Hia, 1). Total, 3.

North America: North Carolina, Dare County (Bodie Island, 3; Pea Island, 1); Georgia (McIntosh County, 1); Florida (Grove City, De Soto County, 1; Canaveral, Brevard County, 1; Louisiana (Brenton Island, 1); Texas (Nueces County, 2; San Patricio County, 1); California (Humboldt Bay, 1). Total, 12.

YOUNG OF THE YEAR

Specimens from North America east of the Rocky Mountains are on the average much lighter above than those from Greenland, Europe, Asia, Alaska, and California. This is especially noticeable when a series is examined, although an occasional dark example from eastern America can be approximately matched by a light European or Alaskan specimen. The eastern American birds, also, have whiter, less buffy edges to the feathers of the upper back, scapulars, tertials and upper wing coverts. The dusky submarginal line on these feathers is generally narrower, duller and therefore less conspicuous. Strange to say, in variance with examples in breeding dress, the small series of immatures from Asia average much darker than the European ones, but this may be due to their being in fresher plumage. They are matched, however, by four of the Greenland specimens and several from Europe. Only six of the fifteen Alaskan examples are as dusky, but the remainder together with those from California are like the European series, and not like those from east of the Rocky Mountains. Therefore, there seem to be no satisfactory characters on which to separate immature knots from Europe from those from Asia and the Pacific coast of North America.

To summarize, in the first or immature plumage Knots can be divided into two groups, a lighter one found in North America east of the Rocky Mountains and a darker one inhabiting Europe, Asia, Alaska and the Pacific coast of North America.

One example seen from La Paz, Lower California, belongs with the light eastern

race. It may well be that both the light and the dark forms winter on the Pacific coast of Central and South America.

Specimens examined.—Europe and Greenland: Greenland (Parker Snow Bay, near Cape York, northwestern Greenland, 4; unspecified, 1); Norway (Bergen, 3); France (Havre, 2); England (Kingsbridge, Devon, 2; St. Ann's, Lancashire, 1; Romney, 2; Burnham, Somerset, 2; Fleetwood, Lancashire, 3; Pagham Harbour, 2; Rossal, Lancashire, 1); Italy (Cremona, Lombardy, 1). Total, 24.

Asia and western North America: Siberia (Chaun Bay, 1; Indian Point, 2); Japan (Yokohama, 1); China (Foochow, Fukien, 1; unspecified, 1); Alaska (Point Barrow, 3; Wainwright, 1; Port Safety, 2; Golovin Bay, Norton Sound, 2; St. Michael, 7); California (Trinidad, Humboldt County, 1); Pacific Beach, San Diego County, 2; Moss Landing, Monterey County, 1); Mexico (La Paz, Lower California, 1). Total, 26.

Interior and eastern North America: Quebec (Magdalen Islands, 4); Alberta (Athabaska Delta, 1); Massachusetts (Monomoy Island, 16; Marshfield, 1; unspecified, 1); Connecticut (West Haven, 1); Indiana (Miller, 4; Wolf Lake, 2); Illinois (Waukegan, 1); North Dakota (Ramsey County, 1; Graham Island, 1). Total, 33.

SUMMARY

From the above study it appears that there is an eastern American race of the Knot characterized by lighter colored upperparts in both the breeding and immature plumages, but indistinguishable from the typical European race in winter dress. It also appears that whereas specimens from eastern Asia in breeding dress are not like either the European or eastern American forms, but are intermediate, examples in immature plumage are inseparable from the typical race. Therefore, the Asiatic form, *rogersi* (Mathews) seems to be an unsatisfactory one, and it is suggested that it be combined with the European race.

If these suggestions are accepted, the races of the Knot, together with their ranges, would be as follows:

Calidris canutus canutus (Linnaeus)

Tringa Canutus Linnaeus, Syst. Nat., ed. 10, 1, 1758:149; Europe; restricted type locality, Sweden. *Canutus canutus rogersi* Mathews, Birds Austr., 3, 1913:270, 273, pl. 163; Shanghai, China.

Range.—Breeds from northwestern Greenland (Parker Snow Bay) and Spitzbergen east across arctic Europe and Siberia to Point Barrow, Alaska. (The Bishop Collection in Field Museum contains a downy young Knot taken at Barrow, Alaska, on July 17, 1936.) Migrates south through Europe, Asia and along the Pacific coast of North America. Winters in England, Africa, Australia, New Zealand, and probably on the Pacific coast of South America.

Calidris canutus rufus (Wilson)

Tringa rufa Wilson, Am. Orn., 7, 1813:43, pl. 57, fig. 5; Middle Atlantic States, that is, New Jersey.

Range.—Breeds in arctic Canada. Migrates south through North America east of the Rocky Mountains. Winters in Central and South America (probably both coasts) south to Tierra del Fuego and occasionally on the south Atlantic and gulf coasts of the United States.

Field Museum of Natural History, Chicago, Illinois, August 6, 1943.

TWO MORE FOSSIL HAWKS FROM THE MIOCENE OF NEBRASKA

By ALEXANDER WETMORE

On March 22, 1938, Harold J. Cook of Agate, Nebraska, secured from the dump at the well known Stonehouse Draw Quarry, about 18 miles south of Agate, Nebraska, the distal end of an avian humerus that he forwarded to me for study. Through pre-occupation with other matters this bone was identified at the time only as a hawk of the family Accipitridae and was not studied in detail until recently. On careful comparison it proves to be an additional species in the subfamily Aegypiinae. The specific name is given as meaning one of great age.

The drawings that illustrate the specimens described in this paper have been made by Sidney Prentice.

Neophrontops vetustus, new species

Characters.—Distal end of humerus (fig. 62) similar to that of *Neophrontops dakotensis* Compton (Amer. Jour. Sci., 30, 1935:344) from the Lower Pliocene at Big Spring Canyon, Bennett County, South Dakota, but considerably smaller; form relatively somewhat more slender.

Description.—Type, distal end of right humerus, collection of Harold J. Cook, no. 691, from the Stonehouse Draw Quarry, Sheep Creek Beds, Middle Miocene, Sioux County, Nebraska, collected March 22, 1938, by Harold J. Cook. Shaft relatively slender, elliptical in outline, somewhat expanded below to support the condyles; radial condyle relatively long, elevated, narrowed toward its inner end, with the distal face nearly plane at inner end, becoming rounded at outer end, and the proximal face slightly undercut; ectepicondylar process projecting slightly as a narrowed plate; ulnar condyle irregularly rounded, projecting distally slightly below the adjacent processes; entepicondylar process rounded; olecranal fossa slightly indicated; brachial depression strong and well marked, considerably elongated. Specimen strongly fossilized; shaft mottled with neutral gray on dull whitish so heavily that it appears gray; distal end grayish white.

Measurements.—Greatest transverse breadth across condyles, 19.2 mm.; least transverse breadth of shaft, 8.2.

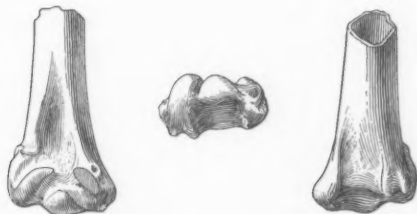


Fig. 62. Distal end of right humerus of *Neophrontops vetustus*; type; natural size.

The accipitrine birds of the subfamily Aegypiinae have the outline of the distal end of the humerus less angular, with the projecting angles more rounded than in related groups, a character well shown in the present specimen. In form, *Neophrontops vetustus* is very similar to *N. dakotensis*, being distinguished mainly by its size, as it was seemingly only slightly more than half as large. It is the third species in the genus to be found in the fossil beds of the United States.

With seven fossil species of this subfamily now known from North America, it appears that birds of this group were found from the Lower Miocene into the Pleistocene,

so that one must wonder at the reasons that led to extinction of these vultures in the New World in view of the abundance of other hawks in the Recent period.

While there is some argument as to the age of the section of the Sheep Creek beds where this fossil was found, it is given here as Middle Miocene.

From the well known *Stenomylus* Quarry near Agate, Nebraska, in the Lower Miocene, Harold J. Cook recently forwarded the distal end of a right metatarsus of a hawk allied to genera which at the present day are known from tropical and subtropical forests. After careful comparison it is designated as

***Palaeastur atavus*, new genus and species**

Characters.—Distal end of metatarsus (fig. 63) rather similar to that of *Spizastur melanoleucus* (Vieillot) (Nouv. Dict. Hist. Nat., 4, 1816:482) from Guiana, but with the inferior foramen relatively more distal in position, located more toward the external margin of the shaft; middle trochlea relatively larger; inner trochlea relatively reduced in size; the shaft relatively slenderer and lighter; and posteriorly projecting plate on outer trochlea less produced.

Description.—Type, collection of Harold J. Cook, no. 693, distal end of right metatarsus, from the Lower Miocene of the Lower Harrison beds, collected by Grayson E. Meade, in the *Stenomylus* Quarry, about 2 miles southeast of the Agate Springs fossil site near Agate, Nebraska. Shaft light and slender in form, the external margin plane and only slightly thickened toward the center; posterior face shallowly concave with sharply angular margins; shaft flattened and broadened distally; inferior foramen located low down in a depression with rounded margins, into which a shallow groove leads from above; facet for hallux strongly defined, relatively elevated; external trochlea narrow with the posteriorly projecting plate on its outer margin decidedly shortened; middle trochlea narrow with its inner and outer faces excavated, and a decided groove around its free margin; inner trochlea relatively small, the projecting wing reduced in size. Bone light brownish white in color, completely fossilized.

Measurements.—Transverse breadth of shaft toward the center, 6.5 mm.; transverse breadth across trochlea, 13.3; distance from upper margin of facet for hallux to distal margin of inner trochlea, 17.2.

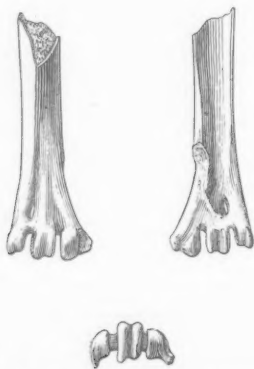


Fig. 63. Distal end of right metatarsus of *Palaeastur atavus*; type; natural size.

The present species, while related to *Spizaëtus grinnelli* (Miller) and *S. willetti* Howard of Quaternary deposits, is decidedly smaller and less heavily formed. Its affinities evidently are with *Leucopternis* and *Spizaëtus*, as well as with *Spizastur* to which it is compared, but it is sufficiently different from all of these to stand apart as a distinct genus. From the first two genera mentioned it differs exactly as it does from

Spizastur. It therefore takes its place as an additional element among the considerable number of fossil accipitrine birds of North America, being the oldest known representative of the restricted group of genera to which it is assigned.

When received in the National Museum the specimen was still embedded in a piece of sandstone matrix from which it has been skillfully removed by Norman Boss, who also has repaired one slight break in the anterior face of the shaft.

United States National Museum, Washington, D.C., August 9, 1943.

FROM FIELD AND STUDY

American Pintail on Palmyra Island.—"On or about November 5th, 1942, a flock of wild ducks, consisting of two species, arrived on this island at approximately 6 a.m. This flock was in a very exhausted condition, and without much effort were all picked up and placed behind a wire fence, properly fed, and allowed to rest and to recover. One bird had a leg tag with the following numbers stamped into same, '40-693910.' It was interesting to note that these birds had flown a considerable distance, and if it is permissible, I would like very much to know where this particular bird was tagged, and its migration habits."

The foregoing letter, signed by Ensign Arthur R. Murphy, U.S.N., was duly received by the Fish and Wildlife Service. Investigation revealed a remarkable flight by an American Pintail, *Dafila acuta tsitsihoo*. This bird, a drake, was one of the many victims of botulism at the Bear River Migratory Bird Refuge in northeastern Utah. Successfully treated at the refuge hospital, it made a complete recovery and was banded and liberated on August 15, 1942, by the refuge superintendent, Vanez T. Wilson. The elapsed time between banding and recapture was 82 days.

While Palmyra Island is administratively a part of the Territory of Hawaii, it is about five degrees north of the equator in the Line Island group, nearly 1100 miles south of Honolulu. A case of this kind promotes speculation and since Ensign Murphy reports that this bird and its companions were so totally exhausted that they were readily captured, it seems reasonable to assume that Palmyra was the first "land fall" the birds had made since leaving the coast of North America. The over-water flight was in excess of 3000 miles and the total flight from the Bear River marshes must have been about 3600 miles.—FREDERICK C. LINCOLN, *Fish and Wildlife Service, Washington, D.C., August 28, 1943.*

Occurrence of the Magnolia Warbler Off the Coast of California.—On the morning of June 8, 1943, the men of a small ship operating about 10 miles west of Halfmoon Bay, California, were surprised to discover a small yellow bird perched low in the rigging. I recognized it as a warbler but could not place it as to species. Later, when compared with skins in the collection of the California Academy of Sciences, it was found to be a male Magnolia Warbler (*Dendroica magnolia*). Grinnell and Wythe (*Pac. Coast Avif.*, 18, 1927:134) list this eastern species as a transient of rare occurrence in the San Francisco Bay region and mention two specimens taken on the Farallon Islands on May 29 and June 2, 1911. Grinnell (*Pac. Coast Avif.*, 11, 1915:148) lists three other records for California: one taken on Santa Barbara Island on May 15, 1897; one in Los Angeles, October 21, 1897, and one on October 5, 1901.

The occurrence in 1943 was about 20 miles south and east of the Farallon Islands. When first observed, the bird seemed in good condition and flew from one part of the ship to another. It took no interest in the crumbs, suet or meat offered by the ship's crew, but made an extensive search about the deck. Fresh water was put out for it but the bird passed close by without partaking. It was seen to sample a puddle of water that must have been salt or brackish.

Three attempts were made by the bird to leave the ship, but when 50 to 100 yards away with no other solid object in sight, it returned. In its search, it hopped about at the feet of men on watch and across my lap when I sat on the deck locker to watch. It seemed to take comfort in the shelter that my outstretched overcoat made from the cold strong wind. Timidity was lost in preoccupation. The bird could have been taken in the hand numerous times without difficulty.

After an hour or more of unusual intimacy, it retired to a remote perch, and I did not see it again until in the afternoon when it was brought to the bridge in the hands of a seaman. I had hoped the creature would last until land was reached, but it already was so weakened that it hardly moved, and in a few moments it expired in my hand. The change from moderate exhaustion to collapse took place in about 5½ hours, as the bird was first observed at about 10:30 a.m. and lasted until 4. I suggest that the bird died of thirst.

This specimen, now no. 58350 in the collection of the California Academy of Sciences, had a weight of 6.5 grams when prepared by Dr. Robert T. Orr.—RICHARD G. MILLER, *U.S.N.R., Miami Beach, Florida, August 27, 1943.*

Birds of Unusual Occurrence in Prospect Park, Redlands, California.—Although my brother, Donald, and I have resided in Prospect Park nearly twelve years, it has been during the past six years only that we have devoted our attention to the distribution of birds there. During this period we have observed one hundred and twenty-three species within the boundaries of the park.

Prospect Park is, in reality, a combination of orange grove and park. The total area is thirty-

nine and sixty-four one hundredths acres, twenty-six of which is in orange grove, and the rest in ornamental trees and shrubs. The prevailing cover is a species of myrtle, forming mats or carpets under the tall trees. A reservoir, two hundred feet in length and one hundred feet in width, supplies the park and grove with irrigation water. Near the house is a small fish pond, bordered on one side by cane thickets. The reservoir and the fish pond form the sole attractions that lure occasional shore and water birds within the confines of the park.

The following report constitutes a summary of the more significant observations made within Prospect Park from the month of April, 1937, until the present time. While many of the birds listed are common within their respective life-zones or habitats in neighboring parts of California, they are not generally to be found within an environment such as the park provides.

Phalacrocorax auritus. Double-crested Cormorant. One adult of this species was seen by my brother and me at the reservoir on March 18, 1940.

Actitis macularia. Spotted Sandpiper. The Spotted Sandpiper is an irregular migrant, present some years, and absent others. One was seen at the reservoir on May 3, 1938. Another was seen there from September 11 to 19, 1938. I saw this species again on April 26, 1940. On October 1, 1942, one was present at the reservoir. My last record is for May 19, 1943.

Columba fasciata. Band-tailed Pigeon. On January 4, 1942, I was surprised to see a flock of about one hundred Band-tailed Pigeons alight in a eucalyptus tree near the house. The birds were restless, however, and were soon on their way.

Spilopelia chinensis. Chinese Spotted Dove. This bird was unknown here until the spring of 1941, but since that time it has become established in the park.

Buteo swainsoni. Swainson Hawk. A flock of over one hundred was seen by Donald Moore. This hawk has been recorded by me on October 20, 1940, and April 2, 1941. On the latter date eight individuals were noted.

Buteo lineatus elegans. Red-bellied Hawk. This buteo is occasionally seen soaring over the park in late winter and early spring. One was seen on March 4, 1940. Another was present from March 15 to 19, 1941.

Dryobates villosus. Hairy Woodpecker. This woodpecker is occasionally seen in late summer, in the fall, and in early spring. In 1938, it was noted in the park from August 28 to October 27. It was next seen from September 4, 1940, to April 28, 1941. My last record is for September 19 to 26, 1942.

Dryobates albolarvatus. White-headed Woodpecker. On October 27, 1940, a steady tapping in a pine tree revealed the presence of an adult male White-headed Woodpecker.

Sphyrapicus varius nuchalis. Red-naped Sapsucker. One was seen by Donald Moore several winters ago in a pepper tree. On January 16, 1941, I was fortunate enough to see one of these rare birds in a pine tree on Fountain Avenue. The bird resembled quite closely the Yellow-bellied Sapsucker of the East.

Aëronautes saxatalis. White-throated Swift. A small flock was seen by Donald and me on December 22, 1938.

Selasphorus alleni. Allen Hummingbird. On March 18, 1939, I observed an adult male feeding on myrtle blossoms near the house. The bird was seen in the vicinity until March 21. Another male was seen on February 23, 1941.

Stellula calliope. Calliope Hummingbird. An adult male was seen feeding on orange blossoms on April 30 and again on May 1, 1938.

Nuttallornis borealis. Olive-sided Flycatcher. This flycatcher was first observed in the park from September 21 to October 1, 1940. Another was seen from May 15 to May 21, 1941. The bird was noted again on June 27, and finally on July 31, 1941. In the year 1942, it was seen on April 21 and from September 3 to September 11. The presence of this flycatcher in the park during June and July seems especially noteworthy, because at this season it is supposed to be found in the mountains only.

Cyanocitta stelleri. Steller Jay. On September 18, 1940, Herbert Hill and I were fortunate enough to locate one of these birds in a peach tree near the house. Later the bird showed a marked preference for the pecan trees about one hundred yards from the house, and on a few occasions I observed it feeding on the nuts. The jay was last seen on June 10, 1941.

Oberholseria chlorura. Green-tailed Towhee. On May 7, 1938, a mewing note similar to that of a kitten called our attention to one of these birds in an orange tree near the house.

Vireo solitarius. Solitary Vireo. The characteristic song of this vireo was heard in a deodar near the house on May 1, 1941. I was later able to locate the bird, and establish its identity with certainty. The species again made its presence known on June 9, 1941, and on April 28, 1942.

Dendroica coronata. Myrtle Warbler. Seen at Fountain Avenue on November 12, 1940. The species was noted at the same place until November 26, 1940. In 1941, it was seen from December 15 to December 21, in 1942 from November 3 to December 6, and in 1943 from January 11 to February 19.

Catherpes mexicanus. Canyon Wren. On June 27, 1941, Donald and I heard the note of a Canyon Wren sounding from somewhere in the rafters of the barn. We soon located the bird; it remained for the rest of the day.

Certhia familiaris. Creeper. On October 4, 1942, I saw two creepers in a group of pecan trees near the house. Later a single bird only was observed. This bird was generally to be found in the pecan trees, in one of several dead oaks, or in a cedar of Lebanon near the house. A creeper was last seen in the park on March 21, 1943.

Sitta canadensis. Red-breasted Nuthatch. Noted in Monterey cypress trees on August 20, 1940, and on October 6, 1940. Heard at various times from September 21, 1942, to January 15, 1943.

Sitta carolinensis. White-breasted Nuthatch. In the late summer and fall of 1940, this nuthatch was present in the park in limited numbers. It seemed to be partial to the Canary Island pine, the pecan trees, and the Monterey cypress. The birds were present from August 27 until November 20.

Ixoreus naevius. Varied Thrush. This thrush was common in the park in the winter and spring of 1938 from February 17 to March 23. Occasionally as many as fifteen were noted at one time. In the winter of 1940-41 it was present from November 21 to April 3, and was noted more regularly but in smaller numbers than in 1938. In the park these birds seemed to favor the camphor and Catalina cherry trees. I have observed them feeding upon the berries of camphor trees, pepper trees, and toyon, and on persimmons.—MILTON MOORE, *Redlands, California, April 17, 1943.*

Catbirds Nesting on the Malheur Refuge in Southeastern Oregon.—On the morning of May 31, 1942, while observing birds along the banks of the Donner Und Blitzen River in the south end of the Malheur National Wildlife Refuge, about two miles east of Frenchglen and only a short distance up river from the old "P" ranch headquarters buildings, a familiar bird song was heard. Locating the bird, it was easily and quickly identified as a Catbird (*Dumetella carolinensis*) with which the writer was well acquainted in the mid-western states. Again on June 6 a Catbird was heard singing by the river just opposite the "P" ranch buildings; it allowed the observer to approach within a few feet before flying. Subsequently the song of this bird was heard frequently in this vicinity. On July 13 three different pairs of Catbirds were flushed from thickets of dogwood and alder along the bank of the river. These birds all appeared nervous and apparently they were nesting. On July 21 two pairs again were noted along the river in these same thickets.

The catbird was first seen in 1943 on June 10 at the "P" ranch. However, one or two birds had been heard singing at intervals a few days previously. On July 15 one pair was noted using the thickets in the vicinity of the orchard and another pair in the vicinity of the granary at the "P" ranch. Repeated search for nests was unsuccessful. On August 6 Mr. Matt. Morgan reported seeing a Catbird carrying a worm in its beak. Late in the afternoon of August 11 the writer heard a Catbird and "squeaked" it to within a few feet. Noting that it was carrying an insect in its beak, it was quietly watched. Two young, evidently just out of the nest, were found in a thicket of willows, roses and currants.

Gabrielson and Jewett (Birds of Oregon, 1940:462) recorded the Catbird as a regular summer resident of Oregon and give its range as the northeastern corner of the state. They also state that it "Undoubtedly breeds, although there are no actual breeding records."

From the evidence herein presented it would appear that the Catbird has extended its range in Oregon and must be regarded as a breeding summer resident of the Donner Und Blitzen Valley.—CLARENCE A. SOOTER, *United States Fish and Wildlife Service, Frenchglen, Oregon, September 24, 1943.*

A Deformed Redhead Duckling.—Few deformed and crippled wild ducklings are observed because death of such birds in one form or another quickly erases the evidence. However, a juvenile Redhead (*Nyroca americana*) was found on August 12, 1940, while the writer was observing the nesting of the Redhead in Iowa.

The nest in which the duckling was found had been discovered 10 days earlier in a patch of hardstem bulrush (*Scirpus acutus*) and bur-reed (*Sparganium eurycarpum*) growing in a 15-acre marsh. The clutch contained only four eggs, one of which had hatched. The other three eggs were undeveloped, probably infertile. The small clutch size, coupled with the late date of hatching, indicated that the nest was a renesting attempt by the female after one or more nesting failures. A larger percentage of the eggs was undeveloped in the other renesting attempts found during the same study than was undeveloped in earlier nests, a fact which adds emphasis to the importance of early nesting successes in the production of duck crops.

At the time of the last observation, the duckling was between 24 and 36 hours old. Although it seemed energetic and struggled to escape, it was unable to move from the nest.

Dissection showed that the legs were attached higher on the back than in a normal duckling.

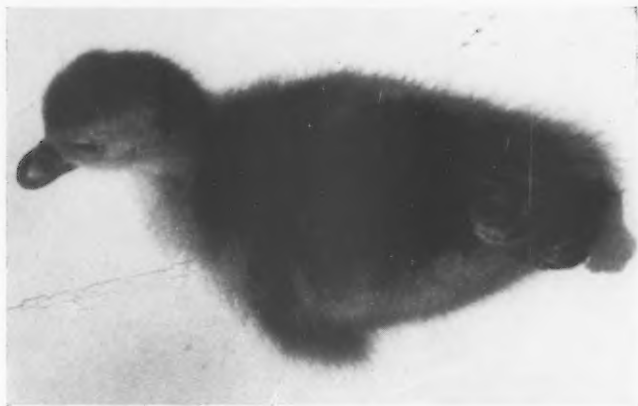


Fig. 64. Young Redhead (*Nyroca americana*) with deformed legs.

The right leg, which lay above the left leg, appeared to rise directly above the spinal column and it extended over to the left side of the body. The joints were stiff and the toes could not be extended. Evidently the malformation was the result of faulty embryonic development.—JESSOP B. Low, *Illinois State Natural History Survey, Urbana, Illinois, September 23, 1943.*

The Horned Lark and the Rock Wren of the San Benito Islands, Lower California.—When Grinnell's "Distributional Summation of the Ornithology of Lower California" was published in 1928, only two endemic forms of land birds were known from the San Benito Islands. This group of three, small, barren islands, which lies about twenty-five miles northwest of the nearest point on the Lower California mainland, has been visited on numerous occasions by naturalists but no intensive study of the avifauna as a whole has ever been made. The chief attractions, aside from various species of sea birds which nest there in abundance, have been the nearly extinct McGregor House Finch and the San Benito Marsh Sparrow; relatively scant attention has been paid to the few other species of resident land birds.

Mr. Alfred M. Bailey, Director of the Colorado Museum of Natural History, recently forwarded for determination some specimens of the Horned Lark and the Rock Wren collected by himself on the San Benitos and at the same time suggested that certain characters, if verified by other material, might be of subspecific value. It so happens that just these characters had long ago been noted in the limited series of both species in the Dickey Collection. They are further substantiated by a few other examples in the collection of the Los Angeles Museum.

Otocoris alpestris baileyi, new subspecies
San Benito Horned Lark

Type.—Adult breeding male, no. 29797 Dickey Collection; West San Benito Island, Lower California, Mexico, February 20, 1930; collected by A. J. van Rossem.

Subspecific characters.—Size smallest of all the races of *Otocoris alpestris*. Wings and tails of males average 93.6 and 59.0 mm., respectively. Coloration very similar to the larger *Otocoris alpestris actia* Oberholser of western California and northwestern Lower California, although perhaps averaging very slightly paler. Compared with *Otocoris alpestris enertera* Oberholser of the adjacent mainland of Lower California, size smaller and coloration darker throughout.

Range.—Resident on the San Benito Islands.

Remarks.—Behle, in his "Distribution and Variation of the Horned Larks of Western North America," 1942, has previously commented on the color of a specimen from these islands, which he included in the range of *enertera*. The twelve examples (8 males and 4 females) now available show very uniform color characters, even though they were collected in February, April, and June. I have

seen no mainland specimens which could be considered as strays or vagrants of *baileyi*, and from present evidence the race seems to be resident on the islands. What race is present on Cedros Island I do not know, but thirteen specimens from Natividad Island (10 winter-taken birds in Dickey Collection and three April-taken, breeding birds, in Bishop Collection) are indistinguishable from *enertera* of the adjacent mainland.

Wing and tail measurements of 8 males of *baileyi* are 92-95 mm. (93.6), and 57-61 (59.0), respectively. Those of four females are 86-90 (88.5), and 52-55 (54.8). On the basis of this small number of females the only size difference between females of *baileyi* and *enertera* is the slightly shorter tail (4 per cent) of the former.

Salpinctes obsoletus tenuirostris, new subspecies

San Benito Rock Wren

Type.—Adult breeding male, no. 29799 Dickey Collection; West San Benito Island, Lower California, Mexico, February 20, 1930; collected by A. J. van Rossem.

Subspecific characters.—Not distinguishable in color or pattern of tail markings from *Salpinctes obsoletus obsoletus*. Bill very much longer than that of *obsoletus* but at the same time distinctly more slender in both vertical and lateral profiles.

Range.—San Benito Islands, Lower California, Mexico.

Remarks.—Eight specimens of the San Benito Rock Wren in the Dickey Collection have been undetermined, subspecifically, ever since they were collected in 1930. The comment by Mr. Bailey that his three adults collected on the islands had longer bills than anything he possessed from the Rocky Mountain region has prompted the present investigation. Additionally, there are two specimens in the Los Angeles Museum, making a total of 13 adults. Five juveniles are too young to be of value for purposes of bill measurement. However, they show no departure in color or tail pattern from *obsoletus*.

Before applying a formal name to the San Benito population of Rock Wrens it has been necessary to consider three proposed island races, *pulverius* Grinnell of San Nicholas Island, California, *proximus* Swarth of San Martín Island, Lower California, and *exsul* Ridgway of San Benedicto Island in the Revillagigedo group off western Mexico. On the basis of 15 specimens of *pulverius* in the Dickey Collection and the Los Angeles Museum there is an unstable tendency toward larger bills and heavier tarsi and feet. Additionally, all but two show some barring on the inner webs of the lateral rectrices, a rather uncommon occurrence in mainland birds. All in all, I agree with Grinnell (Condor, 29, 1927:165-166) that *pulverius* is not recognizably distinct from *obsoletus*, especially as the more yellowish coloration of the former is now known to be adventitious. I have no first hand knowledge of *proximus* other than a casual inspection of the type a number of years ago. However, Grinnell's disposition of the case (Condor, 30, 1928:155-156) would appear to be conclusive; *proximus* is therefore also a synonym of *obsoletus*. A series of 23 adults of *exsul* from the far-removed San Benedicto Island (Colorado Museum 7, Dickey Collection 11, Los Angeles Museum 5) shows that race to be easily recognizable, although the characters which distinguish it from *obsoletus* differ somewhat from those originally ascribed to it by Ridgway (Proc. Biol. Soc. Wash., 16, 1903:169), presumably on the basis of five specimens. On the basis of the present series, it is the palest of the races of *Salpinctes obsoletus*, approximating in pallor and grayness the light extreme of *obsoletus*. The bills are perhaps very slightly heavier and average about 1 mm. longer. The outstanding character is the relatively narrow, more regular, and more numerous barring on both webs of the outermost rectrices; indeed in many individuals some barring is also present on the inner webs of the next pair. I am not able to appreciate any "largeness" of tarsi or feet, nor can I endorse the supposed character of relatively longer tail. Both the wing and tail average very slightly shorter but so minutely so (as is also the case in *tenuirostris*) as to be little more than a tendency.

Measurements of adult males in millimeters

| | Wing | Tail | Exposed culmen |
|------------------------------|--------------|--------------|------------------|
| 24 <i>obsoletus</i> | 67-75 (71.4) | 49-58 (53.3) | 16.5-20.0 (17.7) |
| 9 <i>exsul</i> | 68-71 (69.4) | 49-55 (51.7) | 17.9-20.2 (18.8) |
| 10 <i>tenuirostris</i> | 68-71 (69.6) | 50-54 (51.9) | 19.7-22.1 (20.9) |

Wing and tail abrasion is rapid and I have therefore selected specimens of *obsoletus* approximately comparable to the moderately worn island birds.—A. J. VAN ROSSEM, Dickey Collections, University of California, Los Angeles, August 18, 1943.

Pine Siskin Nesting at Cloudcroft, New Mexico.—On June 13, 1943, about 3 p.m., we discovered two young birds near our home in Cloudcroft, Otero County, New Mexico. They were placed in a cage near an open window so that their calls could be heard outside. After a short time, a Pine Siskin (*Spinus pinus*) appeared at the window and seemed to be disturbed about the young birds. When the cage was placed outside and opened, the parent bird returned and fed the fledglings. The young birds were then placed on a branch of a near-by fir tree and left in the care of the parent.

Cloudcroft is situated at 8600 feet elevation in the Sacramento Mountains and the dominant trees in the vicinity are yellow pine, Douglas fir, white fir, and Gambel oak.

The young birds could not have been out of the nest long at the time they were taken, since they were able to fly only a few feet. The nest where they were hatched was not found.

This is the second record of the Pine Siskin nesting in New Mexico, the first record being from Santa Fe, New Mexico, in 1920, at an elevation of approximately 7000 feet (see Bailey, Birds of New Mexico, 1928:699). This second record extends the known nesting range of this species in New Mexico 185 air miles southward.—R. FRANK HEDGES and ROBERT ORRIN HEDGES, *Soil Conservation Service, Cloudcroft, New Mexico, July 19, 1943.*

Breeding Savannah Sparrows of the Southwestern United States.—Savannah Sparrows (*Passerculus sandwichensis*) collected by J. Stokley Ligon in 1914 at Big Lake (= Marsh Lake), 22 miles south and west of Springerville, Apache County, in central eastern Arizona, apparently are the first evidence that this species breeds in Arizona. Six specimens collected, from August 3 to 10, were adults in worn plumage, except one juvenile taken on August 7. Another specimen was taken on June 24.

Ligon, in his field report in the files of the United States Fish and Wildlife Service, dated August 12, 1914, states that the birds were "fairly common in the marshes in the Big Lake region, from 7,000 to 10,000 feet elevation," while, in his report of the Springerville region, he states that "the Savannah sparrow is also fairly abundant in the marsh a half mile southwest of the city, where it ranges over about a fourth section (160 acres) of land, and where it is breeding." Ligon further states that "this place (one-half mile southwest of Springerville) and Big Lake" are the only places that he has found the Savannah Sparrow, and that "they do not breed elsewhere in southern Apache County."

Major E. A. Goldman and Dr. H. H. T. Jackson also collected breeding Savannah Sparrows from the Big Lake region, taking two on June 16, one on June 7, and one on July 19, 1915. One other bird was shot at long range but was lost in the sedges. Goldman in his catalogue states that "the birds were in breeding condition."

Dr. Alexander Wetmore (Auk, 37, 1920:405) found Savannah Sparrows in small numbers at Lake Burford, New Mexico, on May 28 and 30, and on June 6. Although no nests were found, he remarks that "they apparently bred." At Taos, New Mexico, Vernon Bailey collected two Savannah Sparrows in the meadow, and in his field report in the files of the United States Fish and Wildlife Service, he states that "they were abundant on July 14, 1904."

After the discovery that Savannah Sparrows breed in eastern Arizona, and apparently also in northern New Mexico, the writer endeavored to identify them. He was amazed to find the dissimilarity of these specimens and examples of *Passerculus s. nevadensis*, which race it was assumed the birds of the southwestern United States should most closely resemble. Thinking that possibly they might represent an extension of range northward of *P. s. brunnescens* (Butler, Auk, 5, 1888:265) from Mexico, because of their dark coloration, the author compared them with breeding examples of this form from the Valley of Mexico, but they were found to differ markedly. Search of the literature disclosed that Camras (Field Mus. Nat. Hist., Zool. Ser., 24, 1940:159) had described the breeding Savannah Sparrows of west central Chihuahua and that he had named them *Passerculus sandwichensis rufofuscus*.

The type series (excluding the type) of *rufofuscus* was kindly loaned for comparison by the Field Museum. The breeding birds of Arizona and New Mexico proved to be indistinguishable from this form, thus extending the range of *rufofuscus* northward to the White Mountains of eastern Arizona and the mountains of northern New Mexico. It should be noted that so far as known no Savannah Sparrows have been found breeding between the type locality of *rufofuscus* (Babicora, Chihuahua), the White Mountains of Arizona (Springerville and Big Lake), and the mountains of central northern New Mexico (Taos and Lake Burford). Approximately 400 miles separate the Chihuahua breeding birds from the birds of central eastern Arizona, and approximately 375 miles separate the Arizona colony from the birds apparently breeding in New Mexico. Thus it would appear that over that part of its range which lies in the southwestern United States and northern Mexico the Savannah Sparrow breeds only in very local, isolated areas.

In addition to the specimens already mentioned there is an example of *rufofuscus* taken at Fort Clark, in western Texas, on April 2, 1898, by E. A. Mearns, and one collected by J. D. Ogilby on January 11, 1880, without more locality data than "Texas"; both these specimens are in the United States National Museum. The only other positive records of occurrence of this race are two winter specimens in the Biological Surveys collection taken by Nelson and Goldman on December 25, 1902, at Ocotlan, Jalisco. Burleigh and Lowery (Occas. Papers Mus. Zool., Louisiana State Univ., 12, 1942:208) refer to three specimens of the Savannah Sparrow taken by them in southern Coahuila, one of which they reported as *brunnescens*. If not already done, a re-examination of this specimen should be made to determine its possible relationship to *rufofuscus*.

Although differing noticeably in coloration from *nevadensis* of the Great Basin region in the western United States, *rufofuscus* is similar to *brunnescens* of southern Mexico. It has a decided brownish tone, or ground color, to the upper surface, with the dark areas both above and below heavier. Thus *rufofuscus*, in fresh plumage, is very similar to *labradorius* of northeastern North America, but is even darker and more rufescent than that race. Also it approaches specimens of *P. s. alaudinus* [= *bryanti*] from the coast of central western California, but can be distinguished from that race by its larger size, especially the wing, and by its more rufescent coloration. From *anthinus* [= *alaudinus* of the A. O. U. Check-list] it differs chiefly by virtue of its darker coloration and smaller size.

The separation of populations from northern Mexico and interior southwestern United States under *P. s. rufofuscus* makes necessary the re-characterization of *P. s. brunnescens* from the southern part of the Mexican tableland. This race approaches the eastern form, *P. s. mediogriseus* (Aldrich, Ohio Jour. Sci., 40, 1940:1) somewhat in its relatively grayish rather than brownish tones. It is somewhat more heavily streaked with black than this race, however. It is not unlikely that some Mexican specimens, which Peters and Griscom (Bull. Mus. Comp. Zool., 80, 1938:472) refer to *anthinus* [= *alaudinus*] because of their rich brown tones, really are examples of *rufofuscus*, for, as now understood, *rufofuscus* is a very brownish-toned race (even more so than *anthinus*), and *brunnescens* is a more grayish-toned race, with contrasting dark streaks. Although in spring and summer the tones are largely obscured by wear and fading, worn birds can usually be distinguished.

—ALLEN J. DUVALL, *United States Fish and Wildlife Service, Washington, D. C., May 5, 1943.*

NOTES AND NEWS



Fig. 65. Robert Cushman Murphy, Chairman of the Department of Birds at the American Museum of Natural History; author of *Oceanic Birds of South America*.

As many inquiries are coming in to the undersigned as to the progress of my work on the *Life Histories of North American Birds*, perhaps the readers of the *Condor* would like to know that there are two finished volumes in Washington awaiting publication; another, the 17th, is so near completion that I am beginning to gather information for the 18th volume, which is to contain the wood warblers. The material now in manuscript form covers all the birds from the jays to the vireos, inclusive. Nothing more is likely to be published during the war, but manuscript is to be piled up for future publication. I take this opportunity to thank all those who have contributed notes and photographs for previous volumes, and to request that similar material be sent to me now for use in the warbler volume. The sooner I receive this material, the better use I can make of it.—A. C. BENT, *Taunton, Massachusetts*.

The Sixty-first Annual Meeting of the American Ornithologists' Union was held at the American Museum of Natural History, New York City, October 20, 1943. Due to travel restrictions, the usual five-day meeting with program sessions was dispensed with, all activities being condensed into a stream-lined one-day business session to meet requirements of the by-laws and incorporation rules. Fifteen members of the Council, 19 Fellows, and 11 Members were present.

Officers elected for the new year were as follows: President, James L. Peters, Cambridge, Massachusetts; Vice-presidents, George Willett, Los Angeles, California, and Hoyes Lloyd, Ottawa, Canada; Secretary, Lawrence E. Hicks, Columbus, Ohio; Treasurer, J. Fletcher Street, Philadelphia, Pennsylvania; Editor, John T. Zimmer, New York City; new members of the Council—Dr. Harry C. Oberholser, Cleveland; Ludlow Griscom, Boston; Dr. Alden H. Miller, Berkeley.

The Brewster Medal Award was made to Dr. Alden H. Miller for his publication on "Speciation in the Avian Genus *Junco*." Two fellows were elected: Dr. S. Charles Kendeigh, Champaign, Illinois, and Austin L. Rand, Ottawa.

In addition to 155 new Associate Members, 5 new Members were named: Dean Amadon, New York City; Robert J. Niedrach, Denver, Colorado; Frank A. Pitelka, Berkeley, California; Julian K. Potter, Collingswood, N. J.; Terence M. Shortt, Winnipeg, Manitoba.

The 1944 meeting, if conditions permit, will probably be held in New York City, in October.

—LAWRENCE E. HICKS, *Secretary, American Ornithologists' Union*.

MINUTES OF COOPER CLUB MEETINGS

SOUTHERN DIVISION

JULY.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held on Tuesday, July 27, 1943, at 8:00 p.m. in Room 145, Allan Hancock Foundation, Los Angeles, with President I. D. Nokes in the chair.

Minutes of the June meeting of the Southern Division were approved and minutes of the Northern Division for March to June, inclusive, were read by title. Applications for membership were read from Robert L. Mansfield, Capt. U.S. M.C., Rt. 1, Box 1103, La Mesa, Calif., proposed by Mrs. N. Edward Ayer; and for life membership from Edward McIlhenny Simmons, care of E. A. McIlhenny, Avery Island, La., proposed by W. Lee Chambers.

Mr. George Willett reported that James Moffitt recently was killed in the Aleutian area and

that W. E. Saunders of London, Ontario, had died.

Mr. Willett announced that "Susie," the pet Brewer Blackbird of the vicinity of the Los Angeles Museum, had nested the past spring and raised one young, "Susette," which acquired many of the confiding traits of her mother. A tragedy occurred a few days ago in which "Susette," untrained as to the ways of bees, was stung about the mouth, flew up from the ground to a near-by bush, and quickly dropped dead. Others at the meeting could not recall having observed any similar instance.

Dr. Frederick Kline remarked that the volume of blood in a bird is very small and the effect of a bee sting would be expected to be greater than upon a man. Dr. Kline also reported the nest of a *Phainopepla* near Burbank which contained three eggs; it was placed in a sumac about 7 feet above the ground. Last Saturday there were two young that were being fed, principally buckthorn berries.

An excellent report was given by J. R. Pemberton of "A Three Months Cruise in Mexican Waters in 1938," illustrated by Kodachrome movies taken by himself.

Adjourned.—WALTER W. BENNETT, *Secretary*.

AUGUST.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held on Tuesday, August 31, 1943, at 8:00 p.m. in Room 145, Allan Hancock Foundation, Los Angeles, with President I. D. Nokes in the chair.

Applications for membership were read from William H. Phelps, Apartado 2009, Caracas, Venezuela, proposed by John McB. Robertson; and from Eric Carl Willson, Box 154, Wells, Nevada, proposed by W. Lee Chambers.

After introduction of guest members of the Northern Division, brief talks were made by Captain George Miksch Sutton and A. J. van Rossem. H. L. Cogswell reported Vaux Swifts in Pasadena using a chimney for roosting from July 31, 1943, to August 28, 1943. He also reported an Arizona Hooded Oriole feeding two young Cowbirds in Pasadena recently. Miss Frances Cramer reported recent observations of Song Sparrows feeding young Cowbirds.

The principal address of the evening was given by George Willett who, with much natural humor and excellent scientific exactness, gave the story of his researches on the "Birds of Sitka (Alaska) and Adjacent Islands."

Adjourned.—WALTER W. BENNETT, *Secretary*.

SEPTEMBER.—The regular monthly meeting of the Southern Division of the Cooper Ornithological Club was held on Tuesday, September 28, 1943, at 8:00 p.m. in Room 145, Allan Hancock

Foundation, Los Angeles, with President I. D. Nokes in the chair.

Applications for membership were read from W. W. Nichols, 1263 W. 99th, Los Angeles 44, Calif., proposed by Dr. Irwin D. Nokes; from Mrs. Jennie Lynne Kyle, 1323 McDuff Ave., Jacksonville 5, Florida, proposed by John McB. Robertson; and from Mrs. Vera Victor, care of Acme Foundry, Eureka, Calif., proposed by John M. Davis.

Recent ornithological literature was reviewed by George Willett. A general discussion ensued in which possible kinds of research problems for club members were considered.

Many members reported field observations of importance. Miss Frances Cramer discussed Sparrow Hawks while Mr. W. W. Nichols added that he recently saw two Sparrow Hawks in Los Angeles clinched in the air fighting; they dropped nearly to the ground before breaking. A. J. van Rossem reported that Bush-tits in his yard this year were laying the second clutch of eggs in the same nest before the first young had left. At this time two females were present at the nest. He raised the question as to whether this had been noted before. A letter was then read to the club from its former president, Dr. Sherman F. Wood, now in the service in Florida training as a malariologist.

Adjourned.—WALTER W. BENNETT, *Secretary*.

NORTHERN DIVISION

JULY.—The regular monthly meeting of the Northern Division of the Cooper Ornithological Club was held on Thursday, July 22, 1943, at 8:00 p.m. in Room 2503, Life Sciences Building, University of California, Berkeley, with President Robert C. Miller in the chair. Minutes for the Northern Division for June were approved as read. Minutes of the Southern Division were read. There were two proposals for regular membership in the club: Robert W. Hiatt, Montana State College, Bozeman, Montana, by Jean M. Linsdale; and Mr. Jess M. Markle, 917 Sierra Street, Madera, California, by Alden H. Miller.

The special proposal nominating Howard Robertson, President of the Board of Directors, to honorary membership in the club was given its second reading and was acted upon favorably.

Dr. A. H. Miller reported finding young Grasshopper Sparrows back of Bald Peak on July 4, but heard no adult singing on this date.

The speaker of the evening was Mr. Frank A. Pitelka who discussed "June Field Studies of Birds in Northwestern California," covering sixteen days spent collecting birds in Tehama and Trinity counties. Of particular interest was the investigation of Upper Sonoran Zone pockets in this area.

Adjourned.—ROBERT W. STORER, *Acting Secretary*.

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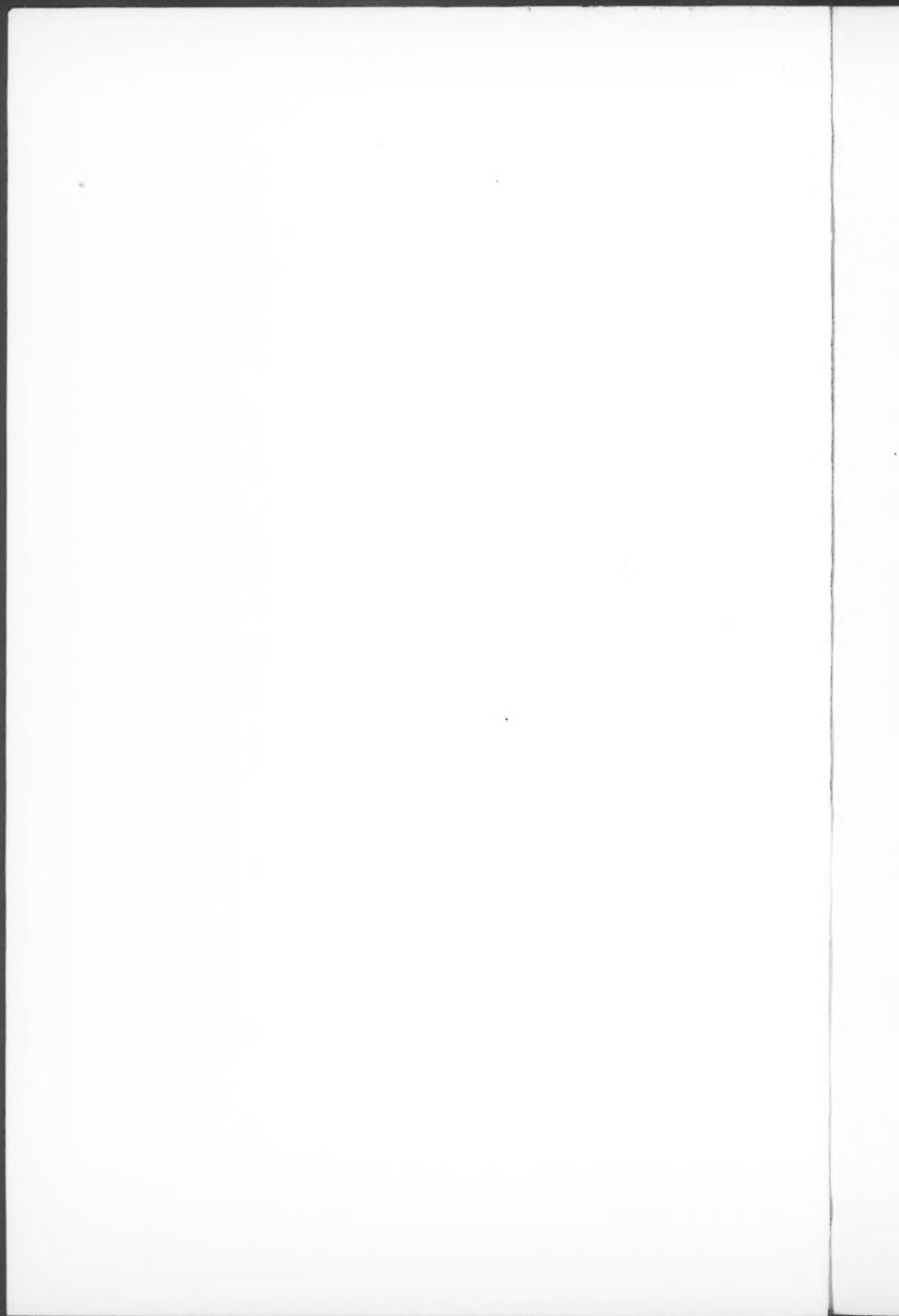
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